THE STATE OF TEXAS

TEXAS ENGINEERING PRACTICE ACT AND RULES CONCERNING THE PRACTICE OF ENGINEERING AND PROFESSIONAL ENGINEERING LICENSURE

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Lines to the right of the text indicate rules which have changed since the last publication was released on December 14, 2015. Changes to tables are indicated with a gray background.

Rules effective May 1, 2016

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general population whose normal course of life might reasonably include an interaction of any sort with the engineering work of the license holder.
(b) Engineers shall not perform any engineering function which, when measured by generally accepted engineering standards or procedures, is reasonably likely to result in the endangerment of lives, health, safety, property, or welfare of the public. Any act or conduct which constitutes incompetence or gross negligence, or a criminal violation of law, constitutes misconduct and shall be censurable by the board.
(c) Engineers shall first notify involved parties of any engineering decisions or practices that might endanger the health, safety, property or welfare of the public. When, in an engineer's judgment, any risk to the public remains unresolved, that engineer shall report any fraud, gross negligence, incompetence, misconduct, unethical or illegal conduct to the board or to proper civil or criminal authorities.
(d) Engineers should strive to adequately examine the environmental impact of their actions and projects, including the prudent use and conservation of resources and energy, in order to make informed recommendations and decisions.

Source Note: The provisions of this §137.55 amended to be effective May 20, 2004.

§137.57 Engineers Shall be Objective and Truthful

(a) Engineers shall issue statements only in an objective and truthful manner. Engineers should strive to make affected parties aware of the engineers' professional concerns regarding particular actions or projects, and of the consequences of engineering decisions or judgments that are overruled or disregarded.
(b) The issuance of oral or written assertions in the practice of engineering shall not be:
(1) fraudulent,
(2) deceitful, or
(3) misleading or shall not in any manner whatsoever tend to create a misleading impression.
(c) The engineer shall disclose a possible conflict of interest to a potential or current client or employer upon discovery of the possible conflict.
(d) A conflict of interest exists when an engineer accepts employment when a reasonable probability exists that the engineer's own financial, business, property, or personal interests may affect any professional judgment, decisions, or practices exercised on behalf of the client or employer. An engineer may accept such an employment only if all parties involved in the potential conflict of interest are fully informed in writing and the client or employer confirms the knowledge of the potential conflict in writing. An engineer in a conflict of interest employment shall maintain the interests of the client and other parties as provided by §137.61 of this title (relating to Engineers Shall Maintain Confidentiality of Clients) and other rules and statutes.

Source Note: The provisions of this §137.57 amended to be effective December 21, 2008.

§137.59 Engineers' Actions Shall Be Competent

(a) Engineers shall practice only in their areas of competence.
(b) The engineer shall not perform any engineering assignment for which the engineer is not qualified by education or experience to perform adequately and competently. However, an engineer may accept an assignment which includes phases outside of the engineer's area of competence if those other phases are performed by qualified licensed professionals, consultants, associates, or employees.
(c) The engineer shall not express an engineering opinion in deposition or before a court, administrative agency, or other public forum which is contrary to generally accepted scientific and engineering principles without fully disclosing the basis and rationale for such an opinion. Engineering opinions which are rendered as expert testimony and contain quantitative values shall be supported by adequate modeling or analysis of the phenomena described.

Source Note: The provisions of this §137.59 amended to be effective September 4, 2006.

§137.61 Engineers Shall Maintain Confidentiality of Clients

(a) The engineer may reveal confidences and private information only with a fully informed client's or employer's consent, or when required by law or court order; or when those confidences, if left undisclosed, would constitute a threat to the health, safety or welfare of the public.
(b) The engineer shall not use a confidence or private information regarding a client or employer to the disadvantage of such client or employer or for the advantage of a third party.
(c) The engineer shall exercise reasonable care to prevent unauthorized disclosure or use of private information or confidences concerning a client or employer by the engineer's employees and associates.

Source Note: The provisions of this §137.61 amended to be effective May 20, 2004.

§137.63 Engineers' Responsibility to the Profession

(a) Engineers shall engage in professional and business activities in an honest and ethical manner. Engineers should strive to promote responsibility, commitment, and ethics both in the education and practice phases of engineering. They should attempt to enhance society's awareness of engineers' responsibilities to the public and encourage the communication of these principles of ethical conduct among engineers.
(b) The engineer shall:
(1) endeavor to meet all of the applicable professional practice requirements of federal, state and local statutes, codes, regulations, rules, ordinances or standards in the performance of engineering services;
(2) exercise reasonable care or diligence to prevent the engineer's partners, associates, and employees from engaging in conduct which, if done by the engineer, would violate any provision of the Texas Engineering Practice Act, general board rule, or any of the professional practice requirements of federal, state and local statutes, codes, regulations, rules or ordinances in the performance of engineering services;
(3) exercise reasonable care to prevent the association of the engineer's name, professional identification, seal, firm or business name in connection with any venture or enterprise which the engineer knows, or should have known, is engaging in trade,

business or professional practices of a fraudulent, deceitful, or dishonest nature, or any action which violates any provision of the Texas Engineering Practice Act or board rules.

(4) act as faithful agent for their employers or clients;

(5) conduct engineering and related business affairs in a manner that is respectful of the client, involved parties, and employees. Inappropriate behaviors or patterns of inappropriate behaviors may include, but are not limited to, misrepresentation in billing; unprofessional correspondence or language; sale and/or performance of unnecessary work; or conduct that harasses or intimidates another party; and

(6) practice engineering in a careful and diligent manner.

(c) The engineer shall not:

(1) aid or abet, directly or indirectly, any unlicensed person or business entity in the unlawful practice of engineering;

(2) maliciously injure or attempt to injure or damage the personal or professional reputation of another by any means. This does not preclude an engineer from giving a frank but private appraisal of engineers or other persons or firms when requested by a client or prospective employer;

(3) retaliate against a person who provides reference material for an application for a license or who in good faith attempts to bring forward an allegation of wrongdoing;

(4) give, offer or promise to pay or deliver, directly or indirectly, any commission, gift, favor, gratuity, benefit, or reward as an inducement to secure any specific engineering work or assignment;

(5) accept compensation or benefits from more than one party for services pertaining to the same project or assignment; or

(6) solicit professional employment in any false or misleading advertising.

Source Note: The provisions of this §137.63 amended to be effective December 21, 2008.

§137.65 Action in Another Jurisdiction

(a) The engineer shall not practice or offer to practice engineering in any other jurisdiction in violation of the laws regulating the practice of professional engineering in that jurisdiction. A finding by such jurisdiction of illegal practice or offer to practice is misconduct and will subject the engineer to disciplinary action in Texas.

(b) Any disciplinary actions taken by another jurisdiction on a matter which would constitute a violation of the Texas Engineering Practice Act or board rules shall be sufficient cause for disciplinary action by this board. A certified copy of the board Order or Final Action from another jurisdiction shall be sufficient evidence to take disciplinary action in this state.

(c) Any complaint, referral or report that a Texas licensed professional engineer performing engineering related to Texas Occupations Code, §1001.068 in another state may be subject to disciplinary action by this board, if after investigation it is determined that the engineering work done in that other state was inadequate, deficient, incorrect or violated that state's law or rules regarding the practice of engineering.

Source Note: The provisions of this §137.65 amended to be effective December 25, 2012.

SUBCHAPTER D: FIRM AND GOVERNMENTAL ENTITY COMPLIANCE

§137.71 Firm Names

Pursuant to §1001.405(e), a business entity that is not registered with the board may not represent to the public by way of letters, signs, or symbols as a part of any sign, directory, listing, contract, document, pamphlet, stationery, advertisement, signature, or business name that it is engaged in the practice of engineering by using the terms:

(1) "engineer,"

(2)"engineering,"

(3)"engineering services,"

(4)"engineering company,"

(5)"engineering, inc.,"

(6)"professional engineers,"

(7)"licensed engineer,"

(8)"registered engineer,"

(9)"licensed professional engineer,"

(10) "registered professional engineer,"

(11)"engineered," or

(12) any abbreviation or variation of those terms listed in (1)-(11) above, or directly or indirectly use or cause to be used any of those terms in combination with other words.

Source Note: The provisions of this §137.71 amended to be effective December 21, 2008.

§137.73 Firm Record Modifications

(a) Each registered firm shall notify the board in writing not later than 30 days after a change in the business entity's:

(1) physical or mailing address, electronic mail address, telephone or facsimile number or other contact information;

(2) officers or directors;

(3) employment status of the professional engineers of the firm;

(4) operation including dissolution of the firm or that the firm no longer offers to provide or is not providing engineering services to the public in Texas; or

(5) operation including addition or dissolution of branch and/or subsidiary offices.

(b) Notice shall include, as applicable, the:

(1) full legal trade or business name entity,

(2) the firm registration number,

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Texas Administrative Code

TITLE 22	EXAMINING BOARDS
PART 39	TEXAS BOARD OF PROFESSIONAL GEOSCIENTISTS
CHAPTER 851	TEXAS BOARD OF PROFESSIONAL GEOSCIENTISTS LICENSING AND ENFORCEMENT RULES
SUBCHAPTER C	CODE OF PROFESSIONAL CONDUCT
RULE §851.106	Responsibility to the Regulation of the Geoscience Profession and Public Protection

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(a) Professional Geoscientists, Geoscientists-in-Training, and Geoscience Firms shall be entrusted to protect the public in the practice of their profession.

(b) A Professional Geoscientist, a Geoscientist-in-Training, or Geoscience Firm shall not:

(1) Knowingly participate, directly or indirectly, in any plan, scheme, or arrangement having as its purpose the violation of any provision of the Act or the rules of the TBPG;

(2) Aid or abet, directly or indirectly:

(A) Any unlicensed person in connection with the unauthorized practice of professional geoscience;

(B) Any business entity in the practice of professional geoscience unless carried on in accordance with the Act and this chapter; or

(C) Any person or any business entity in the use of a professional seal or other professional identification so as to create the opportunity for the unauthorized practice of geoscience by any person or any business entity;

(3) Fail to exercise reasonable care or diligence to prevent his/her partners, associates, shareholders, and employees from engaging in conduct which, if done by a Professional Geoscientist, a Geoscientist-in-Training, or Geoscience Firm, would violate any provision of the Act or the rules of the TBPG.

(c) A Professional Geoscientist or a Geoscientist-in-Training possessing knowledge of an Applicant's qualifications for licensure shall cooperate with the TBPG by responding in writing to the TBPG regarding those qualifications when requested to do so by the TBPG.

(d) A Professional Geoscientist shall be responsible and accountable for the care, custody, control, and use of his/her Professional Geoscientist seal, professional signature, and other professional identification. A Professional Geoscientist whose seal has been lost, stolen, or otherwise misused shall report the loss, theft, or misuse to the TBPG immediately upon discovery of the loss, theft, or misuse. The Executive Director may invalidate the license number of the lost, stolen, or misused seal upon the request of the Professional Geoscientist if the Executive Director deems it necessary.

(e) A Professional Geoscientist, a Geoscientist-in-Training, or an Authorized Official of a Firm shall remain mindful of his/her obligation to the profession and to protect public health, safety, and welfare and shall

report to the TBPG known or suspected violations of the Act or the rules of the TBPG.

(f) A Professional Geoscientist or Geoscience Firm shall keep adequate records of geoscience services provided to the public for no less than five (5) years following the completion and final delivery of the service. Adequate records shall include, but not be limited to:

(1) Documents that have been signed and sealed or would require a signature and a seal;

(2) Relevant documentation that supports geoscientific interpretations, conclusions, and recommendations;

(3) Descriptions of offered geoscience services;

(4) Billing, payment, and financial communications; and

(5) Other relevant records.

(g) Professional Geoscientists, a Geoscientists-in-Training, and Geoscience Firms must adequately examine the environmental impact of their actions and projects, including the prudent use and conservation of resources and energy, in order to make informed recommendations and decisions.

Source Note: The provisions of this §851.106 adopted to be effective December 15, 2010, 35 TexReg 10695; amended to be effective December 11, 2014, 39 TexReg 9539; amended to be effective March 15, 2016, 41 TexReg 1843

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Designation: D3740 – 12a

Standard Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction[1]

This standard is issued under the fixed designation D3740; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope*

1.1 This practice establishes minimum qualifications for agencies engaged in the testing and inspection of soil and rock. Minimum requirements for field and laboratory personnel are defined. The practice also covers the establishment and maintenance of a quality system.

1.2 Criteria are provided for evaluating the capability of an agency to properly perform designated tests on soil and rock, and for establishing essential characteristics pertaining to an agency's organization, personnel, facilities, and quality system. This practice may be supplemented by more specific criteria and requirements for particular projects.

1.3 This practice can be used as a basis to evaluate testing and inspection agencies, or both, and is intended for use for the qualifying or accrediting, or both, of testing or inspection agencies, public or private, engaged in the testing and inspection of soil and rock as used in engineering design and construction.

1.4 This practice is applicable to all standards which include a reference to Practice D3740.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

1.6 *This practice offers a set of instructions for performing one or more specific operations. This document cannot replace education or experience and should be used in conjunction with professional judgment. Not all aspects of this practice may be applicable in all circumstances. This ASTM standard is not intended to represent or replace the standard of care by which the adequacy of a given professional service must be judged, nor should this document be applied without consideration of a project's many unique aspects. The word "Standard" in the title of this document means only that the document has been approved through the ASTM consensus process.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

C1077 Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation

D653 Terminology Relating to Soil, Rock, and Contained Fluids

D3666 Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials

D5255 Practice for Certification of Personnel Engaged in the Testing of Soil and Rock

E329 Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection

E1187 Terminology Relating to Conformity Assessment (Withdrawn 2006)[3]

E1301 Guide for Proficiency Testing by Interlaboratory Comparisons

2.2 *Other Standards:*

AASHTO R18 Recommended Practice for Establishing and Implementing a Quality System for Construction Materials Testing Laboratories[4]

ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories

3. Terminology

3.1 *Definitions:*

[1] This practice is under the jurisdiction of ASTM Committee D18 on Soil and Rock and is the direct responsibility of Subcommittee D18.99 on Quality Control.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] The last approved version of this historical standard is referenced on www.astm.org.

[4] Available from American Association of State Highway and Transportation Officials (AASHTO), 444 N. Capitol St., NW, Suite 249, Washington, DC 20001, http://www.transportation.org.

***A Summary of Changes section appears at the end of this standard**

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3.1.1 For definitions of terms used in this practice see Terminologies D653 and E1187.

3.1.2 Soil and Rock — as used in this standard, any test method, practice, specification or guide developed by D18 and listed in volumes 04.08 and 04.09.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *agency*—an organization, or part of an organization, engaged in activities of technically oriented testing or inspection, or both.

3.2.2 *quality manual*—a document stating the quality policy, quality system and quality practices of an organization.

3.2.3 *qualified national authority*—an organization recognized throughout the country, with the capability to assess and monitor the professional and technical activities of an inspection or testing agency, or both.

4. Significance and Use

4.1 This practice provides the basic minimum criteria for use in evaluating the qualifications of a testing or inspection agency, or both, for soil and rock. The criteria may be supplemented by more specific criteria and requirements. An individual user can also use it to judge the qualification of an agency. The existence of a formal accrediting body such as a federal, state, or independent agency is not necessary for the use of this standard.

NOTE 1—Users of this practice should be aware that certain of these requirements may not be achievable and/or applicable to work performed outside of the U.S.A. In such cases, users should ensure that all necessary modifications are made to these requirements such as to render them appropriate to each specific set of circumstances.

4.2 The intent of this practice is to provide a consensus basis for evaluating a testing or inspection agency, or both, with respect to that agency's capability to objectively and competently provide the specific services needed by the user.

4.3 This practice may be used as a basis for accreditation.

4.4 To qualify for accreditation to this standard, the agency must include at least five standards relating to testing methods, inspection methods, or both, from the standards covered under the jurisdictions of Committee D18, in its certificate of accreditation.

4.5 The users of an accredited agency must review the agency's scope of accreditation to ensure the agency has been accredited for its technical competence to perform the tasks requested by the user.

5. Responsibilities and Duties

5.1 The agency shall ensure that only inspections or tests for which it is adequately equipped and staffed are performed.

5.2 The agency shall ensure that personnel perform only inspections and tests for which they are adequately trained, qualified and certified in accordance with applicable specifications.

5.3 The agency shall ensure that all equipment is properly maintained in good operating condition and is calibrated as applicable.

5.4 The agency shall perform all testing and inspection in accordance with appropriate standards and quality control criteria.

6. General Capabilities

6.1 *Laboratory Testing*—The agency performing laboratory testing of soil and rock shall have suitable test equipment and laboratory facilities for storing and testing samples and preparing samples for test.

6.2 *Field Testing and Inspection*—The field services of a soil and rock testing and inspection agency shall include some or all of the following capabilities:

6.2.1 testing of in situ materials,

6.2.2 testing of materials being processed,

6.2.3 checking on adequacy of production equipment or construction equipment used for reworking or processing soil and rock,

6.2.4 observation and inspection of soil or rock placement, and

6.2.5 in-place testing of constructed components.

6.3 *Sampling*—the services of an agency responsible for sampling soil and rock shall include some or all of the following capabilities:

6.3.1 sampling of in situ materials,

6.3.2 sampling of materials which are to be reworked, processed, and reused,

6.3.3 sampling of materials being processed, and

6.3.4 sampling of constructed components.

7. Personnel Qualifications

7.1 *Management and Supervision*—The testing and inspection services of the agency shall be under the direction of a person charged with the engineering managerial or scientific managerial responsibility. The person shall be a licensed registered engineer or other licensed registered professional and a full-time employee of the agency and shall have a minimum of 5 years engineering or scientific experience, as appropriate, in the inspection and testing of soil and rock; or a person with equivalent science-oriented education and experience in having satisfactorily supervised or directed testing or inspection services, or both, of soil and rock is acceptable.

7.2 *Supervising Laboratory Technician*—The supervising laboratory technician shall have at least 3 years experience performing tests on soil and rock.

7.2.1 This person must demonstrate, by written examination(s), the ability to perform the tests in the manner stipulated under ASTM or other governing procedures and shall be capable of evaluating the test results in terms of specification compliance. Current certification by national, regional or state authorities shall be considered as one means of evidence of fulfilling the written examination requirement (Note 2). The certification shall be appropriate to the work required. At a minimum, the written examination(s) shall include at least five test methods listed in ASTM Volumes 4.08 and 4.09.

7.2.2 In addition, a performance evaluation reviewing the technician's competency to perform the test method correctly shall be conducted prior to the technician performing the test

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independently and at least every 36 months thereafter for each test the person is authorized to perform.

7.3 *Supervising Field Technician*—This person shall have at least 3 years experience in inspecting the kind of work involved in the soil and rock construction project.

7.3.1 This person must demonstrate, by written examination(s), the ability to perform the tests and duties in the manner stipulated under ASTM or other governing procedures and shall be capable of evaluating the test results in terms of specification compliance. Current certification by national, regional or state authorities shall be considered as one means of evidence of fulfilling the written examination requirement (Note 2). The certification shall be appropriate to the work required. At a minimum, the written examination(s) shall include at least five of the testing or inspection methods listed in ASTM Volumes 4.08 and 4.09.

7.3.2 In addition, a performance evaluation reviewing the technician's competency to perform the test method correctly shall be conducted prior to the technician performing the test independently and at least every 36 months thereafter for each test the person is authorized to perform.

7.4 *Inspecting or Testing Technician*—This person shall have a high school diploma or equivalent or trade school training and have had sufficient on-the-job training to properly perform the test or inspection to which the person is assigned.

7.4.1 This person must demonstrate, by written examination(s), the ability to perform the tests in the manner stipulated under ASTM or other governing procedures. Current certification by national, regional or state authorities shall be considered as one means of evidence of fulfilling the written examination requirement (Note 2). The certification shall be appropriate to the work required. At a minimum, the written examination(s) shall include at least five of the testing or inspection methods listed in ASTM Volumes 4.08 and 4.09. Technicians that perform fewer than 5 of the applicable testing or inspection methods will meet the written exam requirement provided the examination(s) includes each testing or inspection method performed.

7.4.2 In addition, a performance evaluation reviewing the technician's competency to perform the test method correctly shall be conducted prior to the technician performing the test independently and at least every 24 months thereafter for each test the person is authorized to perform.

7.4.3 A trainee may perform this work while advancing toward certification under the direct physical supervision of a person meeting the requirements above. The trainee cannot independently evaluate test results or sign as responsible for an inspection or testing report.

NOTE 2—Refer to Practice D5255 for other guidance on certification.

7.5 *Written Examinations*—The written examinations required for the *Supervising Laboratory Technician*, *Supervising Field Technician*, and the *Inspecting or Testing Technician* shall be of sufficient length and detail to cover the entire test or inspection method, including as applicable: the significance of the test or inspection method, sampling, specimen preparation, procedure, and reporting of results.

7.6 *Performance Evaluations*—The performance evaluations required for the *Supervising Laboratory Technician*, *Supervising Field Technician*, and the *Inspecting or Testing Technician* for reviewing the technician's competency shall include a demonstration of the test or inspection method to document the technician's ability to perform the procedure in accordance with the standard.

7.7 It is satisfactory for a person to fill one or more of the levels of management, supervision, inspector, or technician positions in accordance with 7.1, 7.2, 7.3, and 7.4 provided that person qualifies for the highest level. It is also recognized that frequently a few laboratory control tests or inspections are conducted at small field or peripheral locations. It is not the intent of this practice that the supervisory personnel be directly present at such locations at all times.

8. Quality System Criteria

8.1 The agency shall establish and implement a quality system which meets the following criteria:

8.1.1 *Quality Manual*—The agency shall establish and maintain a quality manual that conforms to the requirements in Section 9, Quality Manual (Requirements). Each document in the quality manual shall indicate its preparation date. If a document is revised, the date of revision shall be indicated on the document. The quality manual shall be available for use by laboratory staff.

8.1.2 *Quality Management*—The agency shall designate a person(s) having responsibility for determining if quality system implementation activities are being conducted by agency staff in the manner specified in the agency's quality manual. This individual(s) shall have direct access to top management (Note 3).

NOTE 3—This individual(s) may have other responsibilities (for example, laboratory manager).

8.1.3 *Laboratory Procedure Manual*—The agency shall establish and maintain a procedures manual, outlining the customary method or inspection procedures for each test or service performed by the laboratory. Copies of current ASTM, AASHTO, or other national standards used need not to be included in the manual. However, for each procedure, the manual shall include specific references to such standards along with any exceptions to them or any special instructions (such as requirement for forms, calculation programs, checking, review, or combinations thereof, etc.) (or both). The referenced standards shall be readily available for use by personnel performing the test or service.

8.1.4 *Equipment Calibration and Verification*—The agency shall calibrate or verify all significant testing equipment associated with tests covered by the scope of this standard which the agency performs. As a minimum, the equipment listed in Table 1 shall be included if it is associated with tests performed by the agency. Applicable equipment shall be calibrated or verified at the intervals specified in the agency's quality manual. The intervals specified in the quality manual shall be no greater than those indicated in Table 1 (Note 4). Newly acquired equipment without manufacturers certification and equipment that has not been calibrated or verified because it has been removed from service shall be calibrated or verified

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TABLE 1 Test Equipment Calibration and Verification Requirements

Equipment—Test Method	Requirement	Interval (Month)
Mechanical Shakers	Check Sieving Thoroughness	12
Gen. Purpose Balances, Scales & Weights	Verify Measurements	12
Compression or Loading Device	Verify Measurements	12
Mechanical Compactor	Calibrate Compactive Effort	12
CA Kneading Compactor	Calibrate Compactive Effort and Dwell	24
Ovens	Verify Temperature Setting(s)	12
Vacuum System	Check Pressure	24
Molds	Check Critical Dimensions	12
Manual Hammer	Check Wt. & Critical Dimensions	12
Sieves	Check Physical Condition	12
Liquid Limit Device	Check Wear & Critical Dimensions	12
Grooving Tool	Check Critical Dimensions	12
Hydrometers	Check Critical Dimensions	24
Straightedge	Check planeness of edge	12
Weighted Foot Assembly	Check weight	12
CBR Annular and Slotted Weights	Check weight	12
CBR Penetration Piston	Check diameter	12
Standard Metal Specimen	Check outside diameter	12
Metal Follower	Check diameter	12
Dial Gages, LVDTs, Micrometers	Verify Indications	12
Presure Gages and Transducers	Calibrate Measurements	12
Load Cells	Calibrate Measurements	12
Flow Meters	Calibrate Measurements	12
Thermal Meters and Transducers	Calibrate Measurements	12
Sonic Transducers	Verify Measurements	12

before being placed in service. The agency shall have detailed written procedures for all in-house calibration and verification activities not addressed in standards. These procedures shall indicate the equipment required to perform the calibration or verification.

NOTE 4—When a maximum calibration or verification interval for a specific piece of test equipment is specified in a standard, the maximum interval specified by this document is intended to be the same as the maximum interval specified by the standard.

8.1.5 *Equipment Calibration and Verification Records*—The agency shall maintain calibration and verification records for all equipment specified in the quality manual. Such records shall include:

8.1.5.1 detailed results of the work performed (dimensions, mass, force, frequency, temperature, time, and the like),

8.1.5.2 description of the equipment calibrated or verified including model and serial number or other acceptable identification (Note 10),

8.1.5.3 date the work was done,

8.1.5.4 identification of the individual performing the work,

8.1.5.5 identification of the calibration or verification procedure used,

8.1.5.6 the previous calibration or verification date and the next due date, and

8.1.5.7 identification of any in-house calibration or verification device used.

8.1.6 *Inspection of Facilities*—The agency shall have its facilities inspected at intervals of not more than 3 years by a qualified national authority. The agency shall, within 30 days of the receipt of the evaluation report, submit to the qualified national authority a written report documenting how any deficiencies were corrected.

8.1.7 *Proficiency Sample Testing*—The agency shall participate in a formal proficiency sample program(s) as described in Guide E1301. An inhouse program or a program operated by an independent third party is acceptable. The scope of participation shall be sufficient to validate quality system operation.

8.1.8 *External Audit Records*—The agency shall maintain records of any external audits and documentation describing how the deficiencies were corrected.

8.1.9 *Proficiency Sample Records*—The agency shall retain results of participation in proficiency sample programs including data sheets, summary reports, and documentation describing steps taken to determine the cause of poor results and corrective actions taken.

8.1.10 *Test Methods and Procedures*—The agency shall maintain copies of standard and nonstandard procedures for testing performed which is covered by the scope of this standard and shall ensure that the procedures are the most current and are readily accessible to employees performing the work.

8.1.11 *Test Records*—The agency shall maintain test records which contain sufficient information to permit verification of any test reports. Records pertaining to testing shall include original observations, calculations, derived data and an identification of personnel involved in sampling and testing. The agency shall prepare test reports which clearly, accurately and unambiguously present, but are not limited to, the information specified in Table 2 (Note 5). The procedure for amending reports shall require that the previously existing report be clearly referenced when an amendment is made. The references shall establish a clear audit trail from the latest issuance or deletion to the original report and its supporting data.

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TABLE 2 Test Report Requirements

A Name and address of the testing laboratory
B Identification of the report and the date issued
C Name and address of the client
D Identification of the project
E Description and identification of the test sample
F Date of receipt of the test sample
G Date(s) test was performed
H Identification of the standard test method(s) used and a notation of deviations from the standard
I Test results and other pertinent data required by the standard test method
J Identification of any test results obtained from tests performed by a subcontractor
K The name of the person(s) accepting technical responsibility for the test report
L Any additional sample and field identification/location information

NOTE 5—The requirements in Table 2 apply to the record that is used to present the laboratory's test results in their final form. In some cases, a test report or test data sheet is the final form of the data.

8.1.12 *Records Retention*—Records pertaining to testing, equipment calibration and verification, test reports, internal quality system reviews, proficiency sample testing, test technician training and evaluation, and personnel shall be retained by the laboratory in a secure location for a minimum of 3 years.

NOTE 6—There are many circumstances when a longer retention may be advantageous to the agency. Records concerning the calibration and verification of equipment are an example. Retention schedules of this type usually require such records to be held throughout the useful life of the equipment.

9. Quality Manual (Requirements)

9.1 The agency shall establish and maintain a quality manual meeting the following requirements:

NOTE 7—The quality system requirements of AASHTO R18, ISO/IEC 17025, Specification E329, Practice C1077, or Specification D3666, satisfy the requirements of this standard.

9.1.1 *Organization and Organizational Policies:*

9.1.1.1 The quality manual shall contain the legal name and address of the agency and that of the main office or company, if different, and any other information needed to identify the organization.

9.1.1.2 The quality manual shall contain the ownership and management structure of the agency. Names, affiliations and positions of principal officers and directors shall be listed.

9.1.1.3 The quality manual shall contain an organization chart showing relevant internal organizational components.

9.1.1.4 The quality manual shall contain a list showing applicable dates of the qualifications, accreditations and recognition of the agency by others.

9.1.2 *Staff:*

9.1.2.1 The quality manual shall contain an outline or chart showing operational personnel positions and their lines of authority and responsibility.

9.1.2.2 The quality manual shall contain position descriptions for each technical operational position shown on the agency's organization chart in testing areas covered by the scope of this standard. These position descriptions shall identify the position and include a description of the duties associated with the position, required skills, education and experience, and supervision exercised and received. A reference to where the required position descriptions may be found is acceptable if they are not included in the quality manual.

9.1.2.3 The quality manual shall contain a brief biographical sketch, noting the education, work experience, licensure, certifications, and current position of supervisory technical staff involved in testing areas covered by the scope of this standard. Alternatively, the quality manual may contain a reference to the location of the biographical sketches.

9.1.2.4 The quality manual shall contain a document which describes the method(s) used to ensure that all agency technical staff are trained and qualified to perform tests covered by the scope of this standard. In addition to the description of training methods the document shall indicate what position(s) or employee(s) is responsible for the agency training program and maintenance of training records.

NOTE 8—There may be several different methods employed for differing conditions of staff experience and background including (1) on-the-job apprentice training (one on one) for new employees with little or no experience in laboratory or inspection work; (2) formal in-house training sessions for certification, rating, or competency evaluation; and (3) training by external organizations. An individual with prior experience performing a specific test need only have competency confirmed by the agency.

9.1.2.5 The quality manual shall contain a document describing the method(s) used to evaluate staff competency to ensure that each test covered by the scope of this standard is performed in accordance with standard procedures. This description shall include the frequency of evaluations for each technician and indicate what position(s) or employee(s) is responsible for evaluating staff competency and maintaining records. These procedures shall ensure that each technician performing the test method is evaluated.

NOTE 9—Proficiency sample testing may be useful in evaluating staff competency, however, it should be used in conjunction with observation of actual testing performed.

9.1.2.6 The quality manual shall contain a form(s) for recording training and competency evaluation activities summarized under 9.1.2.4 and 9.1.2.5 including the name of the trainee, name of the evaluator, test method evaluated, the dates and results.

9.1.3 *Facilities and Equipment:*

9.1.3.1 *Inventory*—The quality manual shall contain an inventory of major sampling, testing, calibration and verification equipment associated with the test methods covered by the scope of this standard. A reference to where the inventory is located is acceptable if it is not included in the quality manual. The inventory shall include, for each piece of major equipment, the name, manufacturer, model and serial number (Note 10 and Note 11).

NOTE 10—Major equipment includes equipment such as shakers, physical or chemical testing machines, balances, baths, ovens, microscopes, and computing equipment dedicated to testing. Equipment such as chairs, desks and file cabinets may be excluded. Major equipment does not usually include expendable items such as miscellaneous glassware, sieves, molds and viscometers.

NOTE 11—An identification number assigned by the agency or other unique identifying information may be substituted for the model and serial number if this is the practice normally followed by the agency.

9.1.3.2 *Equipment Calibration and Verification:*

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(1) The quality manual shall contain a list(s) giving a general description of equipment for performing tests covered by the scope of this standard that require calibration or verification. For each item listed, the list shall include the interval of calibration or verification, a reference to the calibration or verification procedure used (Note 12), and the location of calibration and verification records (Note 13).

NOTE 12—When standard calibration procedures are used, the standard shall be referenced. When the procedure used has been prepared by the agency, the in-house designation shall be referenced. It shall be indicated if the work is performed by an outside agency.

NOTE 13—In addition to being in the quality manual, this information may also be included in the calibration and verification records on each piece of equipment.

(2) The quality manual shall contain a document that describes the agency's method for ensuring that the calibration and verification procedures are performed for all required equipment at the specified intervals. This document shall include the name of individual(s) responsible for ensuring that calibration and verification activities are carried out, and procedures for handling equipment that is new, removed from service, out of calibration or defective.

(3) The quality manual shall contain in-house equipment calibration and verification procedures, when they cannot be referenced in applicable standards, or have a reference to their location.

(4) The quality manual shall contain certificates or other documents that establish the traceability of in-house equipment or reference standards used for calibration and verification, or have a reference to their location in the agency.

9.1.4 *Test Records and Reports:*

9.1.4.1 The quality manual shall contain a document that describes methods used by the agency to produce test records and to prepare, check and amend test reports.

9.1.4.2 The quality manual shall contain typical test report forms which illustrate the manner in which tests results and supporting information (see 8.1.11) are documented.

NOTE 14—A printout showing a typical test record is acceptable if the laboratory uses electronic media for report storage.

9.1.5 *Sample Management*—The quality manual shall contain a document describing procedure(s) for sample identification, storage, retention, and disposal of samples.

NOTE 15—In this context, the term storage refers to what is done before testing. The term retention refers to what is done after testing.

9.1.6 *Diagnostic and Corrective Action:*

9.1.6.1 The quality manual shall contain a document(s) describing participation in proficiency sample and on-site inspection programs, methods used to identify poor results and procedures followed when poor results occur or deficiencies occur.

9.1.6.2 The quality manual shall contain a document outlining the method(s) used in responding to external technical complaints.

9.1.7 *Internal Quality System Review*—The quality manual shall contain a document describing the scope of internal quality system reviews, establishing the frequency of these reviews, identifying individuals responsible for the review, describing the distribution of reports to management and identifying the location of resulting records.

9.1.8 *Subcontracting*—The quality manual shall contain a document describing the policies that the agency follows relative to subcontracting, if it engages in such activities. A reference to where the policies may be found is acceptable if they are not included in the quality manual. These policies shall include procedures followed by the agency in selecting competent subcontractors who meet the requirements of this practice and reporting the results of testing performed by subcontractors. If the agency does not engage in such activities, the quality manual shall contain a statement to that effect.

10. Records and Reporting Requirements

10.1 The agency shall maintain a system of records that permits verification of any issued report. A record of each report and related records shall be retained for at least three years and shall include the name of the person performing the test(s).

10.2 The agency shall maintain the following records:

10.2.1 Detailed results (for example, worksheets) of all required equipment calibration and verification,

10.2.2 Results of internal audits,

10.2.3 The results of any on-the-job training performed including name of person, date of training, by whom and type of training,

10.2.4 The results of any activities performed to ensure continued competence in performing standard test methods, including name of person, date of competency check, by whom, what type of activity,

10.2.5 The results of audits and inspections of the agency and certifications of agency personnel with applicable dates,

10.2.6 Records of verification of competency of any external organizations used, and

10.2.7 Records or resumes that document the qualifications, work experience, and training history of each person.

10.3 Each report, as a minimum, shall include:

10.3.1 The name and address of the agency,

10.3.2 The date the report was issued and the date the test or inspection was performed,

10.3.3 The name of the client,

10.3.4 Identification of the report, the project, and the name and title of the person technically responsible for the report, and the standard test method(s) used,

10.3.5 Specific identification and description of the test specimen or item inspected that includes field identification and detailed location information, for example, applicable horizontal and vertical coordinates of the sample source,

10.3.6 The date the test sample or item inspected was received by the agency, if applicable,

10.3.7 The standard test method(s) used with a notation of all known deviations from the referenced methods or requirements of the method(s), or both, not performed by the agency,

10.3.8 Identification of test results or other data, or both, obtained from subcontractor(s), and,

10.3.9 The results and other pertinent data required by the test or inspection method(s) used.

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10.4 Agency test reports shall accurately and clearly present the specified test results and all pertinent data.

10.5 Corrections or additions to reports shall clearly reference the report being amended.

11. Keywords

11.1 construction materials testing; quality assurance; quality control; quality manual; quality system

SUMMARY OF CHANGES

Committee D18 has identified the location of selected changes to this practice since the last issue, D3740–12, that may impact the use of this practice. (Approved May 1, 2012)

(*1*) Revised the calibration, verification, and check intervals for several pieces of equipment in Table 1.

Committee D18 has identified the location of selected changes to this practice since the last issue, D3740–11, that may impact the use of this practice. (Approved March 1, 2012)

(*1*) Added new 7.5 and 7.6 and renumbered subsequent paragraphs.

Committee D18 has identified the location of selected changes to this practice since the last issue, D3740–10, that may impact the use of this practice. (Approved September 1, 2011)

(*1*) Revised 1.4.

(*2*) Revised 7.4.1.

This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, at the address shown below.

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Designation: D5434 – 12

Standard Guide for Field Logging of Subsurface Explorations of Soil and Rock[1]

This standard is issued under the fixed designation D5434; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope*

1.1 This guide describes the type of information that should be recorded during field subsurface explorations in soil and rock.

1.2 This guide is not intended to specify all of the information required for preparing field logs. Such requirements will vary depending on the purpose of the investigation, the intended use of the field log, and particular needs of the client or user.

1.3 This guide is applicable to boreholes, auger holes, excavated pits, or other subsurface exposures such as road side cuts or stream banks. This guide may serve as a supplement to Guide D420.

1.4 This guide may not be suited to all types of subsurface exploration such as mining, agricultural, geologic hazardous waste, or other special types of exploration.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

1.6 *This guide offers an organized collection of information or a series of options and does not recommend a specific course of action. This document cannot replace education or experience and should be used in conjunction with professional judgment. Not all aspects of this guide may be applicable in all circumstances. This ASTM standard is not intended to represent or replace the standard of care of which the adequacy of a given professional service must be judged, nor should this document be applied without consideration of a project's many unique aspects. The word "Standard" in the title of this document means only that the document has been approved through the ASTM consensus process.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D420 Guide to Site Characterization for Engineering Design and Construction Purposes (Withdrawn 2011)[3]

D653 Terminology Relating to Soil, Rock, and Contained Fluids

D1452 Practice for Soil Exploration and Sampling by Auger Borings

D1586 Test Method for Penetration Test (SPT) and Split-Barrel Sampling of Soils

D1587 Practice for Thin-Walled Tube Sampling of Soils for Geotechnical Purposes

D2113 Practice for Rock Core Drilling and Sampling of Rock for Site Investigation

D2488 Practice for Description and Identification of Soils (Visual-Manual Procedure)

D2573 Test Method for Field Vane Shear Test in Cohesive Soil

D3441 Test Method for Mechanical Cone Penetration Tests of Soil

D3550 Practice for Thick Wall, Ring-Lined, Split Barrel, Drive Sampling of Soils

D3740 Practice for Minimum Requirements for Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

D4083 Practice for Description of Frozen Soils (Visual-Manual Procedure)

D4220 Practices for Preserving and Transporting Soil Samples

D4403 Practice for Extensometers Used in Rock

D4544 Practice for Estimating Peat Deposit Thickness

D4623 Test Method for Determination of In Situ Stress in Rock Mass by Overcoring Method—USBM Borehole Deformation Gauge

[1] This guide is under the jurisdiction of ASTM Committee D18 on Soil and Rock and is the direct responsibility of D18.02 onIdentification and Classification of Soils.

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[2] For referenced ASTM standard, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards*volume information, refer to the standard's Document Summary page of the ASTM website.

[3] The last approved version of this historical standard is referenced on www.astm.org.

***A Summary of Changes section appears at the end of this standard**

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D4633 Test Method for Energy Measurement for Dynamic Penetrometers
D4645 Test Method for Determination of In-Situ Stress in Rock Using Hydraulic Fracturing Method
D4719 Test Methods for Prebored Pressuremeter Testing in Soils
D4750 Test Method for Determining Subsurface Liquid Levels in a Borehole or Monitoring Well (Observation Well) (Withdrawn 2010)[3]
D4879 Guide for Geotechnical Mapping of Large Underground Openings in Rock
D5079 Practices for Preserving and Transporting Rock Core Samples
D6032 Test Method for Determining Rock Quality Designation (RQD) of Rock Core

3. Terminology

3.1 *Definitions*—Except as listed below, all definitions are in accordance with Terminology D653.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *field log*—a record prepared during subsurface explorations of soil and rock to document procedures used, test data, descriptions of materials and depths where encountered, ground water conditions, and other information.

4. Summary of Guide

4.1 This guide describes the type of information that should be recorded during the execution of field subsurface explorations in soil and rock. The information described relates to the project, personnel, methods of investigation and equipment used, visual description of subsurface materials and ground water conditions, in-situ testing, installation of monitoring equipment, and other data that may be appropriate.

5. Significance and Use

5.1 The preparation of field logs provides documentation of field exploration procedures and findings for geotechnical, geologic, hydrogeologic, and other investigations of subsurface site conditions. This guide may be used for a broad range of investigations.

5.2 The recorded information in a field log will depend on the specific purpose of the site investigation. All of the information given in this guide need not appear in all field logs.

NOTE 1—The quality of the result produced by this standard is dependent on the competence of the personnel performing it, and the suitability of the equipment and facilities used. Agencies that meet the criteria of Practice D3740 are generally considered capable of competent and objective sampling. Users of this practice are cautioned that compliance with Practice D3740 does not in itself assure reliable results. Reliable results depend on many factors; Practice D3740 provides a means of evaluating some of those factors.

6. Summary of Work

6.1 Soil and rock field logs should include the following written information:

6.1.1 Project information should include:

6.1.1.1 Name and location of the project or project number, or both,

6.1.1.2 Name of personnel onsite during the exploration, such as drilling crew, supervisor, geologist, engineer, and technicians,

6.1.1.3 Names and addresses of organizations involved,

6.1.1.4 Name of person(s) preparing log,

6.1.1.5 Reference datum for project if available and description of datum, and

6.1.1.6 General remarks as appropriate.

6.1.2 Exploration information should include:

6.1.2.1 Exploration number and location (station and coordinates if available and applicable, position relative to a local permanent reference which is identified, or markings of exploration location),

6.1.2.2 Type of exploration, such as drill hole, auger hole, test pit, or road cut,

6.1.2.3 Date and time of start and finish,

6.1.2.4 Weather conditions including recent rain or other events that could affect subsurface conditions,

6.1.2.5 Depth and size of completed exploration,

6.1.2.6 The condition of exploration prior to and after backfilling or sealing, or both, and

6.1.2.7 Method of backfilling or sealing exploration, or both.

6.1.3 Explorations by drill hole or auger hole should include the following drilling information:

6.1.3.1 Type and make (manufacture and model if known) of drilling machine or description and name of contractor,

6.1.3.2 Method of drilling or advancing and cleaning the borehole. State if air, water, or drilling fluid is used. Describe type, source of water and additives, concentration, and tests performed on fluid,

6.1.3.3 Size, type, and section length of drilling rods (rod designations should conform with Table 3 of Method D2113) and drilling bits used.

6.1.3.4 Dates and times of each stage of operation and time to complete intervals,

6.1.3.5 Size of hole (diameter and depth),

6.1.3.6 Ground elevation at top of borehole,

6.1.3.7 Orientation of drill hole, if not vertical (azimuth or bearing and angle),

NOTE 2—Even with careful drilling, the actual subsurface path of both vertical and inclined drill holes may be different from the intended direction of drilling. Deflection of the drill bit due to inclined bedding and hard boulders are some of the many reasons a drill hole might deviate from the intended direction. Drill holes that deviate from the intended direction can give erroneous data if not corrected. This can lead to significant interpretation errors of subsurface conditions and geologic structure. Depending on intended use of the data, it may be prudent to perform a borehole survey so the borehole spatial data can be corrected.

6.1.3.8 Size and description of casing, if appropriate, method of casing installation (driven, drilled, or pushed) and depth of cased portion of boring (casing size designations should conform with Table 2 of Method D2113), hollow-stem augers,

6.1.3.9 Methods used for cleaning equipment or drilling tools, or both, when required, and

6.1.3.10 Describe and state depth of any drilling problems such as borehole instability (cave in, squeezing hole, flowing

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sands), cobbles, lost drilling fluid, lost ground, obstruction, fluid return color changes, and equipment problems.

6.1.4 Exploration by test pit, road cut, stream cut, etc., should include:

6.1.4.1 Method of exploration,

6.1.4.2 Equipment used for excavation,

6.1.4.3 Type of shoring used, and

6.1.4.4 Excavation problems: instability of cut (sloughing, caving, etc.), depth of refusal, difficulty of excavating, etc.

6.1.5 Subsurface information should include:

6.1.5.1 Depth of changes and discontinuities in geologic material and method used to establish change (such as Practice D4544).

6.1.5.2 Description of material encountered with origin or formation name, if possible, and type of samples used for description. The system or method of soil (such as Practices D2488 and D4083) or rock description should be referenced.

6.1.5.3 Description of nature of boundary between strata (gradual or abrupt, as appropriate) and other relevant structural features such as breccia, slickensides, solution zones, discolorations by weathering or hydrothermal fluids, and other stratigraphic information.

6.1.6 Soil or rock sampling and testing information should include:

6.1.6.1 Depth of each sample and number (if used),

6.1.6.2 Method of sampling (reference to appropriate ASTM standard, for example, Practice D1452, Test Method D1586, Method D1587, Practice D3550, or other method).

6.1.6.3 Description of sampler: inside and outside dimensions, length, type of metal, type of coating, and type of liner,

6.1.6.4 Method of sampler insertion: pushed, cored, or driven,

6.1.6.5 Sampler penetration and recovery length of sample. For each rock sample (core run), record the rock quality designation (RQD) in accordance with Test Method D6032, and the rate of coring,

6.1.6.6 Method of sample extrusion. Mark direction of extrusion,

6.1.6.7 Method of preserving samples and preparing for transport (refer to Practices D4220 or D5079),

6.1.6.8 Mark top and bottom of samples and orientation, if possible,

6.1.6.9 Depth and description of any in-situ test performed (reference to applicable ASTM standard, for example, Test Methods D1586, D2573, D3441, D4623, D4633, D4645, D4719, or other tests if applicable),

6.1.6.10 Description of any other field tests conducted on soil and rock during the exploration such as pH, hydraulic conductivity, pressuremeter geophysical, pocket penetrometer, soil gas/vapor analysis, or other tests, and

6.1.6.11 Destination or recipient of samples and method of transportation.

6.1.7 Ground water information should include:

6.1.7.1 Depths and times at which ground water is encountered, including seepage zones, if appropriate,

6.1.7.2 In the case of drilling using drilling fluid, depth of fluid surface in boring and drilling depth at the time of a noted loss or gain in drilling fluid,

6.1.7.3 Depth to ground water level at the completion of drilling and removal of drill steel and description of datum (note condition of borehole, for example, cased or uncased). Date and time measured,

6.1.7.4 Depth to ground water level at some reported time period following completion of drilling and description of datum, when possible.

6.1.7.5 Method or equipment used to determine depth of ground water level, such as Test Method D4750,

6.1.7.6 Method and depth of ground water samples obtained, including size of samples taken and description of sampler, and

6.1.7.7 Description of any field tests conducted on ground water samples such as pH, temperature, conductivity, turbidity, or odor.

6.1.8 Information regarding installation of instrumentation or monitoring equipment should include:

6.1.8.1 Type of equipment installed, for example, piezometers, monitoring well screens, inclinometer, including sizes and types of materials,

6.1.8.2 Depth and description of equipment installed (reference to applicable ASTM standard, for example, Practice D4403, or other standards or procedures),

6.1.8.3 Methods used for installation of equipment and method used for sealing annular space, and

6.1.8.4 Methods used to protect equipment (casing cap or locks).

6.2 Soil and rock field logs should include the following pictorial information:

6.2.1 Maps, drawings, or sketches of area of exploration and subsurface surfaces observed. Include pertinent surface information such as neighboring outcrops, as appropriate. Describe system of mapping, such as Guide D4879 for rock, or legend for symbols of materials. Include dimensions, directions, and slopes, and

6.2.2 Photographs of activities, surfaces, or core. Describe sequence, dates and time, direction, objects used for scale, and subject.

7. Keywords

7.1 drilling; explorations; geologic investigations; ground water; logging; preliminary investigations; sampling; soil investigations; subsurface investigations

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SUMMARY OF CHANGES

Committee D18 has identified the location of selected changes to this guide since the last issue, D5434–09, that may impact the use of this guide. (Approved February 1, 2012)

(*1*) Revised 6.1.6.5.

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GREGORY W. ADAMS - November 04, 2015

SOAH DOCKET NO. 582-15-2082

TCEQ DOCKET NO. 2015-0069-MSW

APPLICATION OF 130 ENVIRONMENTAL PARK, LLC, FOR PROPOSED PERMIT NO. 2383 § BEFORE THE STATE OFFICE § OF § ADMINISTRATIVE HEARINGS §

ORAL AND VIDEOTAPED DEPOSITION OF

GREGORY W. ADAMS

November 4, 2015

ORAL AND VIDEOTAPED DEPOSITION of GREGORY W. ADAMS, produced as a witness at the instance of the Protestants and duly sworn, was taken in the above-styled and numbered cause on November 4, 2015, from 9:42 a.m. to 4:01 p.m., before Dalia F. Inman, Certified Shorthand Reporter in and for the State of Texas, reported by computerized stenotype machine at the offices of Frederick, Perales, Allmon & Rockwell, P.C., 707 Rio Grande, Suite 200, Austin, Texas 78701, pursuant to the Texas Rules of Civil Procedure and the provisions stated on the record or attached hereto.

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P R O C E E D I N G S

VIDEOGRAPHER: It is November 4th, 2015, 9:42 a.m., and we are on the record.

GREGORY W. ADAMS,

having been first duly sworn, testified as follows:

EXAMINATION

BY MR. ALLMON:

Q Good morning, Mr. Adams. My name is Eric Allmon. I represent certain protestants in this matter.

Could you please state your name for the record.

A Greg Adams.

Q Okay. And just kind of as we go forward, if I ask a question that you fully don't understand, feel free to ask me to clarify. I want to make sure we're on the same wavelength. And I think we both need to make efforts not to speak too quickly or over-speak each other. I think we want to be polite to the court reporter here.

You've brought your resume here today. Let me -- let me place something in front of you.

MR. ALLMON: Have this marked as Exhibit 1.

(Adams Exhibit No. 1 marked)

Q (BY MR. ALLMON) And I've placed Exhibit 1 in

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1 front of you. Could you identify that document.

A That's my resume.

Q Okay. Is this an accurate -- is this accurate and complete, to your knowledge?

A It was as of October 2014.

Q Okay. So are you aware that Protestants previously requested a copy of the resume?

A No.

Q When did your counsel ask that you provide this resume?

A I don't recall.

Q Okay. Was it within the last week?

A No.

Q Okay. Now, looking at your 30 years of experience -- so you graduated with your bachelor's in 1985. That's what this reflects. Is that correct?

A Yes.

Q And what was the -- what was your first employment initially upon graduation?

A I worked for Baker-Shiflett. It was a geotechnical and construction materials testing firm in Fort Worth, Texas.

Q Okay. And what was the nature of your work there?

A I worked as a soil quality assurance technician, as a driller's helper. I worked in the soils and materials laboratories. And I was an EIT, or a staff engineer.

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Q So your weren't licensed at that time?

A I was not.

Q Okay. Were there any particular projects that you worked on in your employment at that agency -- at that business?

A I don't recall the name of any of them.

Q Okay. And when did you finish your employment there at Baker-Shiflett?

A In 1987.

Q And where were you employed immediately after your work at Baker-Shiflett?

A The Tennessee Valley Authority.

Q And just to jump back, where was Baker-Shiflett located?

A In Fort Worth, Texas.

Q And then -- so, of course, the Tennessee Valley Authority's in Tennessee?

A Knoxville, Tennessee.

Q Knoxville.

And how long were you with TVA?

A Six months.

Q And what was the nature of your work there?

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A I worked in the geotechnical division of the -- I believe it was called the office of -- office of -- of nuclear engineering.
Q So did you deal with landfills in any way while you were with TVA?
A No.
Q And had you dealt with landfills in any way while you were with Baker-Shiflett?
A No.
Q And where were you employed after -- immediately after TVA?
A I was employed with ERCE.
Q Okay. And what was the nature of your work when you were with them?
A I was a staff geotechnical engineer.
Q And where were they located?
A Knoxville, Tennessee.
Q Were there any particular projects you worked on while you were there?
A I don't recall the name of any of them.
Q And when did -- so that would've begun, that work there, in the 1988 time frame?
A Yes.
Q And when did your work there terminate?
A Sometime around 1990.

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Q And where did you go immediately after ERCE?
A I worked for Brown & Root Environmental.
Q And where was your work located with them?
A Oak Ridge, Tennessee.
Q And what was the nature of your work with Brown & Root?
A I was a staff engineer and a construction superintendent.
Q Did you work with landfills in any way when you worked for Brown & Root at that time?
A No.
Q Did you work with any other type of waste facility when you were with Brown & Root at that time?
A I worked on remediation of groundwater.
Q So were those occasions where leaks had already occurred or where ground -- let me re-ask that.
Were those occasions where contamination already was present?
A Yes.
Q Okay. And what types of facilities had that contamination originated?
A Those were at Department of Defense installations.
Q And what types of facilities run by the Department of Defense?

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A The ones I worked on were Air Force bases.
Q And so, I guess, you began there around 1990?
A Yes.
Q And when did your employment there cease?
A 1993.
Q At the time, when you finished in '93, were you licensed to practice in any state?
A Yes.
Q Which state was that?
A Tennessee and Texas.
Q Now, up to that point, you had not actually worked in Texas. Is that correct?
A No, I worked in Texas, at Baker-Shiflett.
Q Baker-Shiflett. Okay. I guess I -- okay.
And when did you receive your license in Texas?
A I don't recall what year in Texas. Sometime between -- sometime between '90 and '93.
Q And when did you receive the license in Tennessee, roughly?
A I believe that was 1990.
Q And after your work at Brown & Root -- well, what terminated -- where did you go to work?
A Emcon.
Q Could you spell that, please.

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A E-M-C-O-N.
Q And where was that located?
A Fort Worth, Texas.
Q And what type of work did you do with Encom [sic]?
A I was a project engineer.
Q What type of projects did you work with?
A Solid waste.
Q And what type of solid waste projects?
A Mostly disposal facilities.
Q So by "disposal facilities," are we talking about landfills?
A Yes.
Q Did you work on any particular projects when you were with Encom?
A Yes.
Q Do you remember those?
A I remember -- I remember some of those.
Q And which ones do you remember?
A I remember working at Ellis County Disposal.
Q Was there a particular facility you worked with with Ellis County Disposal?
A I don't -- I'm not sure I understand that question.
Q Was there a particular permit application or

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construction project you worked with with Ellis County Disposal?

A I worked on a construction project.

Q Was that a construction project for a landfill?

A Yes.

Q Where is that landfill located?

A In Ellis County, Texas.

Q And other than the Ellis County Disposal site, did you work on any other projects with Encom?

A Yes.

Q Which -- could you -- what was the first project you worked with with Encom?

A I don't recall.

Q Don't recall.

Other than Ellis County, what's another one that you recall?

A I recall working on a landfill in Newcastle, Oklahoma.

Q Who was the operator of that landfill?

A USA Waste.

Q And what was the nature of your work associated with that landfill?

A I was the project engineer for the Subtitle D permit modifications and construction designer and construction manager for cell construction.

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Q Okay. And other than the Ellis County Disposal and the Newcastle, Oklahoma project, is there another one you worked with with Emcon?

A Yes.

Q Could you name -- well, first, let me -- can you name all of those you remember when you were working with Emcon?

A Yeah, I can name all I can remember.

Q Okay. Go ahead.

A And that will be not near all of them.

Q All right.

A I worked at a landfill in Abilene, Texas. I worked on a landfill in Jacksonville, Texas. I worked on a landfill in Wichita Falls, Texas. I worked on a landfill in Iowa Park, Texas. I worked on a landfill in Dallas, Texas. I worked on a landfill in Model City, New York. I worked on a landfill in --

Those are the ones that come to mind right now.

Q The one in Abilene, what was the nature of that project?

A We did the -- the -- that was a construction project, cell construction.

Q So did that involve any permitting?

A Not the construction part.

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Q Okay. So your work on that Abilene landfill didn't involve the permitting?

A May have. I don't recall.

Q Okay.

A At -- during the 1993 to 1994 time, we -- at Emcon, we did a lot of modifications for the Subtitle D regulations. I worked on a lot of sites during that time and bits and pieces of a lot. And to be honest with you, I don't recall the name of all of them.

Q Okay. And then the Jacksonville, who was the owner of that landfill?

A I don't remember.

Q What was the nature of the project involved there?

A That was cell construction.

Q So, again, do you remember whether that involved a permitting action?

A I don't remember.

Q The Wichita Falls, who was the owner of that landfill?

A The City of Wichita Falls.

Q Did that involve the permitting?

A Yes.

Q What type of permit action?

A Subtitle D modifications.

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Q And what was your role in the Wichita Falls?

A I was a project engineer.

Q And the Iowa Park, who was the owner?

A Bell Processing.

Q What type of landfill was that?

A Municipal solid waste.

Q And was that a permitting action?

A Yes.

Q What type of permitting action?

A Permit modification. And a -- well, that one we did a permit modification, and we also did a permit amendment.

Q What was the nature of the change sought through the amendment in that case?

A Capacity.

Q And the Dallas facility, who was the owner of that facility?

A The City of Dallas.

Q What type of facility was that?

A A municipal solid waste.

Q Did that involve a permitting action?

A Yes.

Q What type of permitting action?

A Modification.

Q And, again, was that another Subtitle D --

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A **Yes.**
Q -- version?
A **Well, no. That one was a change to the grading plans, the excavation plan and the final cover plan.**
Q And the Model City, New York, what type of project was that?
A **Construction.**
Q So did that involve any permitting?
A **No.**
Q What -- what portions of the facility did that involve construction of?
A **The liner.**
Q What type of liner was being installed?
A **The -- it was -- that facility was a hazardous waste facility. So it had a two-foot clay liner and a double geomembrane.**
Q So were you directly involved in the installation of that double liner?
A **Yes.**
Q And so are those all the projects you can remember working with while you were at Encom?
A **Those that I remember right now.**
Q And when did your work at Encom -- Emcon cease?
A **1999.**
Q And where did you go to work at immediately

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after Encom?
A **Biggs & Mathews.**
Q So would that have been -- starting there have been approximately in '99?
A **Yes.**
Q And have you been with them since '99?
A **Yes.**
Q Do you remember the first project you worked with with Biggs & Mathews?
A **One of the first would've been the permit application for TASWA. That's...**
Q And what type of permit application was that?
A **Municipal solid waste landfill.**
Q And was that granted?
A **Yes.**
Q And was that a greenfield facility or an amendment?
A **It was a greenfield facility.**
Q And after TASWA, what's the next one you remember working on?
A **The City of Wichita Falls.**
Q What type of application was involved there?
A **It was a permit amendment.**
Q Was that granted?
A **Yes.**

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Q And after the City of Wichita Falls, what's the next project you can recall?
A **I worked for the City of Dallas.**
Q And what was the nature of the project involved there?
A **Cell -- that was cell construction.**
Q Was there any permitting action involved in your work?
A **No.**
Q Okay. After City of Dallas, what's the next you can remember?
A **I worked on the Paris landfill.**
Q Did that involve an amendment or a greenfield facility?
A **That was an amendment.**
Q What was the nature of the amendment sought there?
A **It was an expansion.**
Q Was that application granted?
A **Yes.**
Q What was the nature of your work in association with that?
A **I worked as a project engineer.**
Q After the Paris landfill, what's the next project you can remember?

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A **I worked on a -- it would be the Skyline landfill.**
Q And was that a greenfield site or an amendment site?
A **It was neither.**
Q Okay. What was the nature of the work there?
A **It was a construction project to install a hauling facility and truck maintenance facility.**
Q So what was your role?
A **I was the construction manager.**
Q And after the Skyline, what's the next facility you can remember working on?
A **New Boston landfill.**
Q Was that a greenfield or an amendment?
A **An amendment.**
Q What was your role there?
A **I was a project engineer.**
Q Was that granted?
A **Yes.**
Q Are you aware of whether there have been any leaks that have occurred at the New Boston landfill?
A **No.**
Q Now, after New Boston, what's another -- the next landfill project you can remember working on?
A **I worked on New Boston continually for**

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construction projects.
Q And then -- so other than New Boston, is there another facility you can remember working on subsequent -- immediately subsequent to that?
A I can't tell you immediately.
Q Huh?
A I can't tell you the -- I can remember projects, but, chronologically, I --
Q Okay. Well, what's the next one kind of in -- vaguely the time -- the next one you can remember in that time frame.
A The next one would probably be the East Oak landfill in Oklahoma City.
Q What was the nature of the action involved there?
A Construction.
Q And what elements did that involve the construction of?
A A liner.
Q Was that a permit application proceeding in any way?
A No.
Q And -- okay. After East Oak, roughly in that time frame, what's the next you remember?
A A quarry landfill in Tulsa, Oklahoma.

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Q And what was the nature of your work there?
A Construction management.
Q What elements were being constructed?
A Landfill liner.
Q What type of liner was involved there?
A The liner was a -- a -- it would be an alternate Subtitle D liner.
Q Did that involve any type of permitting action?
A No.
Q So after the quarry in Tulsa, in that time frame, what's the next you remember?
A Well, I continued to work on the City of Dallas landfill.
Q Okay.
A And I worked -- I began work on the DFW landfill in Lewisville, Texas.
Q What was the nature of your work on the DFW landfill?
A Construction management and design work.
Q Was there permitting action involved there?
A No.
Q And after that time frame, after DFW Lewisville, do you recall any project?
A I worked at the Skyline landfill again.
Q Okay. And the nature of that project?

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A Construction.
Q Was a permitting matter involved there?
A No.
Q Were you involved in the design of what you were working on there, the Skyline landfill?
A Yes.
Q What was the nature of your involvement in the design?
A I was the design engineer.
Q And in that time frame, after Skyline, do you remember your next project?
A The Hillside landfill in Sherman, Texas.
Q What was the nature of that project?
A Construction.
Q Was a permitting action involved there?
A No.
Q And in that time frame after Hillside, were you involved in -- do you recall being involved in any project?
A Yes.
Q Could you identify that?
A It was the Muskogee landfill in Muskogee, Oklahoma.
Q And, roughly, when in time was that Muskogee landfill?

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A 2009, 2010.
Q And what was the nature of the project there at the Muskogee landfill?
A Construction.
Q Did that involve a permitting action?
A No.
Q After Muskogee, in that time frame, what project do you recall?
A The Jacksboro landfill.
Q And what was the nature of the project there?
A That was a permit application.
Q And what was your involvement with that landfill?
A I was a project engineer.
Q And in that time frame, after Jacksboro, what project were you involved in?
A La Gloria landfill.
Q And what type of work was involved there?
A I was a project engineer.
Q Was that a permitting proceeding?
A It was a permit application.
Q Was that a greenfield or an amendment?
A Greenfield.
Q What portions of the -- so did you work on the permit application in that matter?

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A **Yes.**
Q What portions of the application did you address?
A **The geotechnical study.**
Q After La Gloria, in that time frame, do you recall working on a matter?
A **Sunset Farms landfill.**
Q What was the nature of that work?
A **That was a permit amendment.**
Q And did you assist in the preparation of the application there?
A **The -- the amendment?**
Q Yeah.
A **Yes.**
Q What portions did you participate in?
A **The geotechnical study.**
Q In that time frame after Sunset Farms, do you recall the next project?
A **Project -- the Pintail landfill.**
Q And what's the nature of that application?
A **It was a municipal solid waste landfill.**
Q And was that a greenfield site or an amendment?
A **A greenfield site.**
Q What's the status of that application?
A **I'm not sure. I think it's pending.**

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Q Are you currently involved in that application?
A **I'm not.**
Q Okay. Now, in this time frame after Pintail, is there another project you recall being involved in?
A **New Boston landfill.**
Q What's the nature of your work in that matter?
A **I was a project engineer.**
Q Was that a -- was that an amendment?
A **That is an amendment.**
Q Do you know the status of that application?
A **I believe that one's been issued. It's been approved.**
Q Okay. Is there any project after New Boston that you -- a project you were working on at this point that you also can recall?
A **The 130.**
Q And is there any other project you're currently working on?
A **Yes.**
Q Could you name -- is there more than one project you're also currently working on other than --
A **Yes.**
Q Could you name those?
A **I'm working on a project for the City of Dallas.**

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Q Is that an amendment? Or what type of --
A **Construction.**
Q Is there a permitting proceeding involved with that?
A **No.**
Q And what other than the New Boston one, the 130 EP, and the City of Dallas are you currently working on?
A **DFW landfill.**
Q What type of project is involved there?
A **Those are construction projects.**
Q Is it a permitting proceeding involved there?
A **No.**
Q And what other than the New Boston, 130 EP, City of Dallas, and DFW?
A **The Muskogee landfill.**
Q What's the nature of the project there?
A **Construction.**
Q Is there another one you're currently working on? Any other one?
A **Yes.**
Q Could you -- well, let me ask you.
Could you name all the others you're currently working on?
A **Maybe not all, but I can name some.**
Q Could you add those you can remember at this

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time?
A **Yeah. I'm working on the Karnes County disposal facility.**
Q Okay.
A **And that is a oil waste disposal facility.**
Q Okay.
A **And I'm working on the Waste Management hauling facility in Fort Worth.**
Q Okay.
A **That's all that come to mind right now.**
Q Okay. Now, in looking at your resume, it says you've been a project manager for the closure of five landfills. Does that in -- were those five all included in what we've run through?
A **Some may. I'm not sure.**
Q Do you remember what five this refers to?
A **I remember it would be the Greater Texoma Utility Authority landfill. The -- it was a landfill in Killeen. A disposal site on the Lone Star Army Ammunition Plant.**
Q Okay.
A **A -- one -- a disposal area at CSC landfill in -- in Avalon, Texas. The -- and the landfill in Fort Worth that was on Highway 121; I don't recall the name of it, or the official name of it.**

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Q And the Texoma, where is that in the closure process? What stage of the process is that in?
A At which site?
Q The Texoma.
A It's not in closure.
Q I guess that this says you've been the project manager for the closure of five landfills. But that one's not at the closure stage yet?
A Which Texoma?
Q Texoma. I just asked you for which five this referred to when you said the project manager for the closure of five landfills --
A Yeah.
Q -- and you said Texoma. So you haven't had any work as the project manager --
A No, I didn't say Texoma.
Q Okay. So we've got -- for this item, we've got Killeen, Lone Star, CSC Avalon, and Fort Worth. And what's the other in this -- in this five?
A Those are the ones I remember right now.
Q Okay. So you remember four out of five referenced here?
A Yes.
Q The Killeen, what stage is that one at?
A It's -- I don't know. Since it was closed and

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went into post-closure, I've not worked there.
Q How long was that in the closure period?
A How long was it in a closure period?
Q Yes.
A I worked on the -- on the closure of -- I don't know if it was -- that was a pre-Subtitle D. We closed that in the late '90s.
Q And when had that initially -- I guess is that now in the post-closure stage?
A I don't know.
Q And the Lone Star, where is that in the process?
A I -- I'm assuming that that is closed.
Q How long was that in the closure stage?
A I worked on the -- the -- building the final cover.
Q Uh-huh.
A I didn't work during the post-closure stage on that one.
Q Other than the --
A Oh, I -- the one you noted as Texoma --
Q Uh-huh.
A -- that was actually -- that was the GTUA, the Greater Texoma Utility Authority.
Q Okay. Other than the facility in New York,

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have you worked on any other project with a double liner?
A I'm working on one right now.
Q And what is that?
A That's the Karnes County disposal facility.
Q And those would be the two projects you've worked with with a double liner?
A Yes.
Q When were you first contacted regarding this project we're here to discuss today?
A I don't recall.
Q Can you estimate?
A It would -- probably sometime in 2013.
Q When did you begin work on this project?
A It would be in 2013.
Q Now, are you being paid for your work on this project?
A Yes.
Q What is -- well, are you being paid at an hourly rate?
A No.
Q Are you billing at an hourly rate?
A I don't know.
Q If this permit is granted, would Biggs & Mathews be involved in the construction phase?

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A I don't know.
Q Is it possible Biggs & Mathews would be involved in the construction phase?
A It's possible.
Q Do you know how much Biggs & Mathews has billed for your work in this project so far?
A No.
Q Do you know if they've been paid for the work done so far?
A No.
Q Would you have any estimate of how much's been billed so far?
A No.
Q So you leave the finances to someone else?
A I'm not the project manager of this project.
Q Okay. What are the areas on this project that you're working on?
A I've been the design engineer for the waste management unit design, and I prepared the closure plan, the post-closure plan, and the closure and post-closure cost estimates. I also prepared the geotechnical portion of the geology and geotechnical report.
Q Were you involved in any portion of the geology report other than the geotechnical section?
A Only the geotechnical portion.

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Q So of the geology report, you were only involved in the geotechnical evaluation?
A And -- and the field work and the...
Q Were you involved in the evaluation of the field work? The development -- were you involved in the development of the cross sections?
A The geologic cross sections?
Q The geologic cross sections.
A No.
Q Do you have any experience -- well, do you consider yourself an expert in drainage?
A No.
Q Do you consider yourself an expert in floodplains?
A No.
Q Do you consider yourself an expert in surface hydrology?
A No.
Q Do you consider yourself an expert in storm water control?
A No.
Q Now, did you seal the geology report?
A I sealed the section -- or that I was responsible for.
Q Is your seal on the cover of the geology

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report?
A Yes.
Q So -- but your understanding is that you were, by that seal, only sponsoring the geotechnical information?
A Yes.
Q So that seal is not indicating an endorsement of any other portion of the geology report?
A It is not.
Q Okay. Now -- and let's talk about the boring program at the site.
Who does -- was responsible for laying out the boring plan?
A Mike Snyder.
Q Did you participate in the development of the boring plan?
A No.
Q So did you have any role in selecting the location of the borings?
A No.
Q Did you have any role in selecting the depth of the borings?
A No.
Q Did you have any role in selecting the depth at which the borings would be screened?

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A No.
Q Were you present in the field when the borings were performed?
A I was present during the drilling, not every day.
Q Generally, when were the borings performed in this case that you were present for?
A The drilling was done, I believe, in -- during September of 2013. During that time, I was there one day a week.
Q And how many days a week was -- were the borings being performed?
A I don't recall.
Q So roughly what proportion of the time were you there during the boring program?
A I was there weekly.
Q Did you have any field notes?
A No.
Q Did Michael Snyder have any field notes?
A That I'm aware of.
Q Is it your practices not to take any field notes?
A It is my practice to not take field notes.
Q So do you think there's anything important that you may be able to observe in the field during your

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visits?
A Yes.
Q What are the things that would be important to observe during your visits to the field and the boring program?
A The sampling procedure.
Q But you didn't document your observation of the sampling procedures in any way?
A No.
Q Other than the sampling procedures, is there anything else that may be important to observe during your visits?
A No.
Q What are the aspects of the sampling procedures that would be important to observe during a visit?
A The -- the -- the procedures that were being used to verify that the samples were being taken and wrapped in a correct manner.
Q When we say "samples being taken," what were the methods used to take the samples in this case?
A There were -- some samples were cuttings from augers. Some were taken with a split-spoon sampler. Some were taken with Shelby tubes.
Q Now, could you generally describe what's involved in taking a split-spoon sample?

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A A split spoon is a small diameter tube. It has a -- what we call a driving shoe on the end of it. It's inserted into the borehole. It is advanced by hitting the top of it with a weight and driven into the ground.
Q Uh-huh.
A It is then pulled out. It's taken apart. And it's called a split spoon because it comes off in two halves. And the sample was -- is taken from -- from that sampler.
Q And to be clear, when we say "taken apart in two halves," is it the sample that's in two halves or just the --
A The sampler.
Q Sampler in two halves.
And could you generally describe what's involved in a sampling using a Shelby tube?
A A Shelby tube is a thin wall, larger diameter sampler, and it is pushed into the ground hydraulically.
Q And when we say -- so hydraulically, as opposed to using --
A Mechanical hammer.
Q -- mechanical?
A Yes.
Q Are there any consequences for the things you can observe from the sample as a difference between a

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Shelby tube versus a split spoon?
A I'm not sure I understand the question.
Q Is there any reason in a -- one would choose to use one over the other?
A Yes.
Q What are those reasons?
A A -- where -- a Shelby tube will give you a relatively undisturbed sample.
Q Okay.
A And a split spoon, the sample has some degree of disturbance because of the -- because it's hammered into the ground.
Q And --
A A Shelby tube can only be advanced depending on the size of the rig and the weight of the rig. And so at times, it's not -- not possible to -- to push tubes.
Q Were there any situations here where it wasn't possible to use a Shelby tube?
A Yeah. There were times when it wouldn't push.
Q Do you remember any particular boring where that was the case?
A No.
Q And, of course, we don't know that, because you didn't take any field notes?
A No, you can look at the logs. The sample types

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are listed on the logs.
Q And in each occasion where a split spoon was used, is that because a Shelby tube wasn't able to be advanced?
A No, not on each occasion.
Q Is there any way to know which occasions a split spoon was used because a Shelby tube could not versus which occasions simply chose to use a split spoon?
A No.
Q At any point, did you express concern or ask for an alteration in how the sampling program was being performed based on your observation of the site visit?
A No.
Q So at every site visit, you thought that the sampling was being performed in a perfect manner?
A Yes.
Q Did you make any documentation of your visits after you returned to the office?
A No.
Q So you have no way, other than just your memory, of recalling what occurred during the -- during your site visits?
A Could you phrase that as a question?
Q Yeah. So other than your memory of what

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happened during your site visits, do you have any other documentation or information regarding your observations?
A No.
Q Okay. Is it standard practice to not make any field notes?
A It's not been my practice over the years.
Q Do you know if it's been practice of others?
A I've never observed anybody doing it.
Q Okay. When we say "anybody," have you ever observed other professional engineers taking field notes for site visits?
A No.
Q What about professional geologists?
A No.
Q Do any of the engineers at Biggs & Mathews take notes during field visits?
A I don't know.
Q And do any of the other -- any of the geologists at Biggs & Mathews take notes during field visits?
A I don't know.
Q Okay. Do you have a standard practice at the firm related to field notes?
A No.

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Q So do you have a standard practice regarding the taking of field notes?
A No.
Q What about a standard practice with regard to the maintenance of field notes?
A No.
Q Who was the driller for the borings at this site?
A We contracted to Stefan Stamoulis.
Q Do you know if Mr. Stamoulis took any field notes?
A I don't know.
Q At any point, did you review any field notes proved by Mr. Stamoulis?
A No.
Q Okay. Could you describe the process of taking a sample from the boring and transferring it to the lab?
A From the boring to the lab?
Q From the boring to the lab.
A The --
Q Say we pull up a boring in a tube and get to the top of the boring hole. What is the process from getting to that step to having it in the laboratory, for example?
A If it is -- if it is a split-spoon sample, the

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sampler is taken apart. The sample is then taken and wrapped in plastic and labeled.
Q Okay.
A And it is placed in a sample box.
Q Uh-huh.
A If it is a Shelby tube sample, its sample is pushed or extruded out of the sampler. It's wrapped in plastic. It's labeled. And it's placed in the sample box. And the sample box is labeled.
Q Uh-huh.
A Those, during the week, are stored on site in a enclosed trailer. And then each Friday, I would come to the site; and when I left, I would put the -- I would -- I would take the sample boxes from that week's worth of drilling and load them into my truck. And while I was at the site, I would take out the samples that I wanted to have lab testing performed on; load those into a separate box.
The box with the samples for the lab testing I would take to our office and hand those to the manager at our office -- of the lab.
Q Uh-huh.
A And he would take them from there to the actual laboratory.
Q So once they reached the laboratory, those

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samples had been taken over the course of a week, were some of the samples -- had been out of the ground longer than others?
A Yes.
Q Were any of samples transferred to the lab undisturbed? Well, let me ask --
Any of the samples transferred to the lab disturbed samples?
A Yes.
Q Okay. Do you have any marking or indication of which ones were disturbed?
A Yes. They'll be marked on the -- on the logs as a split-spoon sample.
Q And how did you select which logs to have sampled? Would -- how did you select which logs to have -- log -- let me back up.
How did you select which samples to have tested in the laboratory?
A I looked at the -- I looked at the -- at the field logs and at the samples in the field, and I would select samples for classification purposes that represented the materials that were being encountered. And I would select samples for some other tests at -- at different elevations based on the excavation plan.
Q And when you say you selected those that were

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representative, did you use any particular criteria to decide what would be representative?
A Visual.
Q And what were you looking for when you made a visual observation?
A I'm looking for samples that look similar, have similar properties.
Q And you said that you looked at the field logs. Do you know -- were those field logs maintained in any way?
A Not that I'm aware of.
Q What happened to those field logs?
A They were discarded.
Q Did you -- who were the field logs taken by?
A There were -- I -- I brought field logs back with me on some occasions, but I can't say it was every occasion.
Q Okay. Who initially compiled the field logs?
A The -- the driller.
Q And then from what I understand -- did you take all of those field logs back to your office or only some field logs?
A Well, since I was there weekly, there were -- I would take some back, the ones from that week. But I can't remember if I did that each and every week.

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Q So were there maybe some field logs that you did not take back to the office?
A Maybe.
Q Okay. And did you review -- so how did you use the field logs you brought back to the office?
A I --
Q Let me ask you, did you use those in any way?
A Yes.
Q How did you use those?
A I used those as the -- as the markup to prepare the final logs.
Q But if I understand -- so, in some cases, you hadn't brought a field log back?
A I would get -- get those later. They would be sent to the office from the driller.
Q So, eventually, you obtained field logs for all of the samples?
A Yes.
Q Okay. Was sampling continuous in each of the borings?
A It was continuous in some of the borings, not each of the borings. And it was continuous to -- to certain depths.
Q When sampling was not continuous, what was the reason for the lack of continuous sampling?

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A Because there was an ample amount of continuous sampling.
Q So, in those cases, you would choose not to perform continuous sampling?
A Yes.
Q Who prepared the boring logs contained in the application?
A The -- I prepared the final copy.
Q Were you the sole person involved in the preparation of the boring logs?
A No.
Q Who else was involved in the preparation of the boring logs?
A Mike Snyder. And he --
Q How -- I apologize. Go ahead.
A And Lindy Faber.
Q Could you spell -- so Lindy, could you spell that first name.
A L-I-N-D-Y.
Q And the last name?
A F-A-B-E-R.
Q And what was Lindy Faber's role?
A She prepared the -- the logs in the Gantt format. It's a data entry.
Q Did she have any substantive role?

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A No.
Q And how was the work divided between you and Mr. Snyder?
A I would look at the samples and prepare the logs for the -- to go into the Gantt format. And after they were retrieved -- after that was done, Mike would review those logs.
Q And then did you perform another review after Mr. Snyder?
A Multiple reviews.
Q So was it kind of a back-and-forth at that point?
A Yes.
Q Did one of you in particular have final review of the logs?
A Mike would have final review of the logs.
Q Were there any cases where he and you had any differences regarding interpretation of the logs?
A No.
Q So why did you have back-and-forth if you both had reached identical conclusions?
A Well, part of it is, it -- it's the proofreading, to be sure that the information each time it's edited is correctly transferred.
Q And in performing that proofreading, what were

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you looking for?
A I was looking to see that the information was correctly -- from the markup copy was entered correctly.
Q Were there any occasions where information was removed during an editing process?
A I don't recall.
Q Were pebbles present in any of the borings?
A I recall near the -- I mean, do you have the borings with you?
Q I believe I have some of them.
Well, do you recall whether pebbles were present in any of the borings?
A I recall near surface there being some pebbles.
Q And did that impact the ability to take a undisturbed sample?
A Yes.
Q How did that impact the ability to take an undisturbed sample?
A If you're not -- if the pebbles are -- if you encounter pebbles -- large enough pebbles, the sampler won't go through them.
Q So did you send any samples with pebbles to the lab for testing?
A I don't recall sending.
Q So none of the samples that you tested -- so

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none of the samples you tested for hydraulic conductivity were ones where you'd found pebbles?
A For hydraulic conductivity?
Q Hydraulic conductivity.
A No.
Q Do you have formal quality assurance procedures for the log preparation?
A Not formal.
Q Do you have informal procedures for quality assurance for the log preparation?
A Yes.
Q What's the nature of those informal procedures?
A The nature of the -- for the preparation is that I do the initial markups; and then the administrative assistant proofreads the markups; then I proofread them; and then I give them to Mike Snyder; and then we go through the process until we're complete.
Q Okay. When you were in the field, going back, did you observe Stefan Stamoulis as he was performing the drilling functions?
A Did I observe Stefan?
Q Did you observe the actual drilling processes he was going through?
A Yes.
Q Okay. Do you recall the -- kind of the length

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at which you encountered cobble or pebble intervals in the borings?
A It was from -- maybe from two to four feet.
Q What does the presence of those cobbles or pebble -- pebbles indicate to you regarding the formation?
A Nothing to me.
Q Okay. So what are some of the characteristics of the Leona formation?
A That is a geology question. I'm not a geologist.
Q So any issue involving geology would be a question for someone else? Is that what you're saying?
A Yes.
Q Were any in situ permeability tests performed?
A I would have to look back at the permit.
Q Okay. If you would give me just a second.
Was groundwater encountered in any of the boring logs?
A I would have to look at the logs.
Q So that's not something you examined in the preparation -- did you examine the -- the presence of groundwater in preparing the logs?
A Yes.
Q What value would there be in in situ

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permeability tests?
A From an engineering point of view, the value would be, if we were designing a new watering system, it would provide us input for that design.
Q Is there any -- can the performance of a permeability test in the lab -- is there anything that that process would influence the outcome versus the performance of permeability tests in situ?
A I'm not sure I understand the question.
Q Okay. When we perform -- it's possible to perform permeability tests in a lab. Is that correct?
A Correct.
Q And it's also possible to perm them in situ?
A Correct.
Q So as we look at the differences between those two, is there anything about performing a test in the lab that may influence the results?
A I'm still not following. That may -- something in the lab that may influence the results?
Q Is there anything about the process of taking the sample to the lab or performing the test there that might yield a different outcome than if you were to perform the -- the testing right there in situ?
A Nothing about the process.
Q Were any of the sample remolded prior to being

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tested in the lab?
A Yes, I believe so.
Q And how can remolding -- well, is there any way in which the remolding process can influence the results?
A Yes.
Q How can it influence the results?
A Well, it change -- it can change the permeability.
Q And what type of influence can it have on the change?
A Well, it depends on how it's remolded. It could either go up or go down.
Q Were any of the -- were any of the samples that were tested for permeability remolded samples?
A Yes.
Q Do you -- how many of those samples were remolded samples?
A I don't remember.
Q So in those cases where you tested remolded samples in the lab, could it be that a different result would've been produced had that sampling been done in situ?
A Yes.
Q Is it possible that that sampling would've

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produced -- would've reflected a more permeable formation?

A In -- at this site, probably not. Now, you have to remember the remolded samples were specifically remolded for a purpose. They were remolded to see how this would perform as a -- as a constructed liner. And so they are remolded to a specific density and moisture content. So just simply saying remolded is -- but -- but at the liner standards that we remolded them to, if I remember right, these are probably pretty similar to the in situ.

Q Would a remolded sample give you a reflection of the natural in-place permeability of that material?

A Generally not.

Q Okay. What efforts were made to determine the permeability of these materials in place?

A I only did the -- did the lab permeability test.

Q Okay. Uh-huh.

A The -- any in situ testing I wasn't involved in.

Q In doing the lab permeability tests, were any of those done to determine the in situ permeability of the material?

A Yes.

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Q Okay. So they were not all performed in order to determine the permeability as a constructed liner?

A Correct.

Q Okay. Were any of those samples -- excuse me. Were any of those tests performed to determine the actual permeability in place done with remolded samples?

A Could you rephrase that, please.

Q Did you -- was there any case where you -- was there any case where you used a remolded sample for the purpose of determining the permeability of the soil in place?

A No.

Q Are there indications in the logs whether a sample was remolded or not?

A Not in the logs. It's in the -- it's in the -- in the test data.

Q Okay. Was there any particular standards followed in the preservation of samples?

A Well, we used standard sampling procedures. We wrapped them in -- in the standard manner.

Q Do you know if ASTM4220 was followed?

A I don't know if it was.

Q So as you observed in the field, you didn't make sure that that particular standard was adhered to?

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A No.

Q How long generally between when the samples were collected were they then delivered to the lab?

A It would usually be with -- a week.

Q Did you have any specific chain of custody procedures in place?

A I filled out a sample assignment --

Q Uh-huh.

A -- form --

Q Okay.

A -- and -- and gave that to the lab.

Q So was there any paperwork done between the field and when you picked them up?

A No.

Q Have you maintained any of the soil samples?

A Not that I'm aware of.

Q Is it possible that some of the soil samples have still been maintained?

A I guess it's possible, but not probable.

Q So you don't know?

A I don't know.

Q Is it your general -- is it the firm's general practice to discard samples?

A At some time, yes.

Q Do you have any standard procedure for when

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samples are discarded?

A No. That's up to the project manager.

Q Okay. What efforts were made to identify secondary features in the borings in the samples that were gathered?

A Such as?

Q Such as a crack or a slick and slide -- slick inside, those types of features.

A A portion of the samples is -- the samplings is broke apart, and it's visual.

Q And how were those recorded? How were those observations recorded?

A They would be recorded on the -- initially, on the field log. Then I would repeat the procedure as I was preparing the final logs.

Q Did you make any notations of specifically -- a specific depth at which, say, a secondary feature was involved or did you just list it in relationship to a general interval?

A On -- I don't recall seeing secondary features on this, but it would be listed in the general entry.

Q So you don't recall any cracks in the boring in the samples?

A No. I recall the samples being -- on this one, I remember the weathered portion being -- having a

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blocky nature. And that's listed in the descriptors.
Q And when you saying "blocky nature," what do you mean by that description?
A That means as you break the sample apart, it has a -- it looks like small -- small blocks.
Q And is there anything with regard to the hydrology that blocking -- blockiness would indicate?
A Not to me.
Q Okay. Do you have the expertise to evaluate how a blocky sample -- what would that indicate with regard to hydrology?
A Not to hydrology. That's not my area of expertise.
Q What would be the influence of the presence of pebbles on the geotechnical qualities of a soil?
A Could you be more specific? There are some geotechnical qualities that would be enhanced by pebbles; others that would be -- it would be detrimental.
Q What are the qualities that would be enhanced?
A Structural strength.
Q And what are the qualities that would perhaps be degraded?
A Permeability.
Q What about the sheer strength? How would the

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presence of pebbles impact the sheer strength of a material?
A Well, it depends on the material and the -- and the number of pebbles. But generally adding larger drain materials would increase your strength.
Q Jumping back to the logs for a second, did you have -- we discussed any differences of opinion with Mr. Snyder.
Did you have any differences of opinion with Mr. Stamoulis?
A No.
Q Did you have conversations with him regarding his characterization of the material?
A Yes.
Q And what was the nature of those conversations?
A On the first visit, we looked at the soil. He was noting it as silty clay.
Q Uh-huh.
A And it was hard to tell from looking at a sample. I wasn't sure that it was silty, so I ran a number of ring-size distribution tests to confirm that there was silt present.
Q So, in the end, did your tests align with what Mr. Stamoulis had represented to you?
A Yes.

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Q And a silty clay, kind of, what proportion of silt to clay was present in --
A I would have to look at -- I don't recall. I would have to look at the test results.
Q How would the presence of silt influence the permeability of material?
A Depending on the matrix, it -- it -- I mean, that's -- would be specific to the material. In this material --
Q Uh-huh.
A -- the material is still classified as a highly plastic clay. The permeabilities were what we would expect for a highly plastic clay.
Q And in a material like this, would water be more likely to move generally through the material or through a feature, such as a fault or a crack?
A That would be a question for Mr. Snyder.
Q Okay. You have no opinion on that?
A No.
Q So do you have any opinion related to the hydrology beneath the site?
A None to share.
Q Do you have any opinion related to the hydrology below the site that you don't like to share?
A No. I'm a -- I'm a geotechnical engineer, not

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a hydrologist.
Q So you have no opinion regarding the hydrology beneath the site?
A No.
Q So in your -- did you have discussions with Mr. Snyder regarding the hydrology beneath the site?
A I don't recall any.
Q Okay.
A Other than -- well, I recall that the site was dry.
Q But other than that factual observation, you don't have any -- well, do you have any factual observations other than that general recollection regarding the hydrology at the site?
A No.
Q So looking at your resume, I see that you list -- well, up there, the second line under "Education and Training" indicates Groundwater Hydrology University of Tennessee.
A Yes.
Q Is that a -- what type of -- was that a degree?
A No. That was a graduate-level course.
Q But you don't consider yourself an expert in groundwater hydrology?
A No.

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Q Okay. So I guess from you -- your view -- so how would that groundwater hydrology relate to your opinions being offered in this case, if at all?
A Which degree?
Q The groundwater hydrology.
A That was only a single course.
Q Okay. How would that course -- well, would that course in any way relate to your opinions offered in this case?
A No.
Q No.
Do you have prior experience with an application being protested?
A Yes.
Q Okay. So you're aware that an application such as this can potentially be protested?
A Yes.
Q Okay. And are you aware that -- prior to this case, were you aware that a case might end up in a contested case hearing?
A This case?
Q Prior to this case, when you started working here, were you aware that a case such as this may wind up in a contested case hearing?
A Yes.

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Q Okay. Did you have any knowledge at any point of persons in the area that may be opposed to the landfill?
A No.
Q But now, of course, you're aware that there's opposition to the landfill?
A Yes.
Q At what point did you become aware of opposition to the landfill?
A I don't recall when that happened. It was sometime after the permit was submitted -- or the application was submitted.
Q When you learned that there was opposition, did you alter your document retention approach at any -- at that point?
A I didn't have anything to alter.
Q Okay. Were you provided a copy of the letter from Ms. Perales indicating that the matter may be contested?
A No.
Q Okay. Did anyone communicate to you at any point that you needed to begin to retain records?
A Nothing different than normal.
Q Okay. So up until this point, you just followed your normal record retention policies, and

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those haven't changed as the result of the matter being in litigation?
A Basically, no.
Q Okay. Have you been asked by anyone to disclose all documents that's been provided to review or prepared for you?
A Yes.
Q Okay. And when were you asked to do that?
A I don't recall. It would've been -- this is 2015 -- maybe sometime last year.
Q Okay. And did you do that?
A Yes.
Q Okay. Have you kept that updated? Have you continued to provide those documents?
In other words, have you provided -- well, who asked you to provide those types of documents? Who directly came to you and said, Can you provide those?
A Mike Snyder.
Q And so, of course, this is in litigation, and that's part of the discovery process.
Was everything that you had provided to Mike Snyder, who then provided it to, say, your legal team?
A That's my understanding.
Q So did he review everything prior to it being

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provided to the legal team?
A I don't know.
Q You don't know.
But it went through him?
A Him and Gwen Archer.
Q Okay.
A And that's physically who I probably would've handed it to.
Q Do you consider yourself to work for Mr. Snyder?
A No.
Q Okay.
A But on this project, he is the project manager.
Q So if there were to be a disagreement with you and him, would it be generally his opinion that would control?
A It's his project.
Q Okay. Even though you're the professional engineer?
So is he directing your work in this case?
A Well, he's directing the project, the scheduling. And when we do it and -- and -- but as far as the actual technical aspect of it --
Q Uh-huh.
A -- no, he does not direct that.

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Q Who would we ask to determine if any of the samples have been retained?
A Ask Mike Snyder.
Q Okay. So do you have a -- we've discussed geology.
Do you have an opinion as to say whether the Leona formation is present beneath the site?
A I don't.
Q Okay. Do you have an opinion as to whether the boring program was adequate in this case?
A It was adequate for my work, the geotechnical portion.
Q But do you have an opinion as to whether it was adequate to characterize the uppermost aquifer?
A I have no opinion.
Q Do you have an opinion as to whether it was adequate to characterize the direction of the groundwater beneath the site?
A No, I have no opinion.
Q Okay. Do you have an opinion as to whether it was adequate to characterize the presence of water beneath the site?
A I have no opinion.
MR. ALLMON: Brent, maybe this would be a time for a quick break --

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MR. RYAN: Okay.
MR. ALLMON: -- for a break for a few minutes. Want to take -- take about ten minutes?
MR. RYAN: Okay.
VIDEOGRAPHER: It is 11:02, and we're off the record.
(Break taken)
VIDEOGRAPHER: It is 11:18, and we are back on the record.
Q (BY MR. ALLMON) Okay. Now, in jumping back to field logs for just a minute, have you in the past ever used field logs in final review of the logs prepared in an application?
Have you made use of the driller's field logs in preparation of the logs for an application, the final logs?
A Yes.
Q Have you made changes to the final logs based on field logs?
A I make the final logs using the field logs.
Q Okay. And is any point where you've reached the final ones and gone back to review the field logs and made alterations to those?
A Not that I recall.
Q Okay. Now, was the depth of the excavation at

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this site altered -- the planned excavation altered during the permitting process?
A I don't know.
Q Did you have any role in the selection of the determination of the excavation here?
A I did in the design of the excavation, but not the -- not the limiting depth.
Q Is there any particular reason you're aware of as to why the excavation depth was selected?
A No.
Q Was a soil balance performed in this case to determine whether there was soil available for the landfill?
A I don't recall anything formal, but I'm sure we calculated excavation quantities.
Q Do you have any records of those calculations?
A None that I'm aware of.
Q Okay. What do you plan to use -- well, let me ask you, do you plan to use on-site soil for final cover?
A Yes.
Q And have you made a determination whether on-site -- site soil meets the needs for final cover?
A I believe in the geotechnical report it addresses the characteristics needed and the material -- on-site materials.
Q Is the excavation depth of this landfill typical for a landfill?
A I don't know that there's a typical depth for a landfill.
Q Now -- but we walked through any number of landfill projects you've been involved in previously. Correct?
A Uh-huh.
Q How does the depth of excavation at this landfill compare to those in the projects you've worked with?
A It's deeper than some and shallower than some.
Q Which ones is it deeper than?
A I believe it would be deeper than the Pintail.
Q And when we say "depth," to be clear, I'm referring to depth below the natural surface.
A Yes.
Q And so -- so which ones is it deeper than?
A It's deeper than Pintail. It's -- it's deeper than the original Skyline design, until it was re-permitted. It's -- it's deeper than portions of the DFW landfill. It's deeper than the East Oak landfill. Those are ones that come to mind.
Q Do you feel confident that there's adequate

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soil on site for use at the -- for the landfill needs?
A Yes.
Q Okay. And then again, that's based on your formal calculations?
A Yes.
Q Which you don't have?
A Correct.
Q Okay. And does that include soils for roads and berms?
A Yes.
Q Do you have any specific testing you've done of soil qualities to make sure it's adequate for uses, roads, and berms?
A No. That will come when you need to design the road.
Q Okay. So, at this point, you don't know the design -- do you know the design needs for the roadway?
A I know the dimensions and the performance requirements.
Q When we say "performance requirements," what do you mean?
A It is to be an all-weather road.
Q Okay. Do you know any particular density or hydraulic conductivity needed for the roads --
A Well, hydraulic conductivity --

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Q -- or strength?
A -- is -- is -- strength?
No. That -- I mean, that would come with -- with a formal road design.
Q Okay. What considerations are made in determining the excavation depth of the landfill?
A The -- the ultimate depth is -- was selected by the client.
Q And in designing the landfill, what type of factors do you consider in determining the depth?
A What the client requests.
Q Are there any technical considerations that one would look at in determining the proper depth?
A Not -- no, there's not a proper depth.
Q Are there any technical considerations you'd look at in determining what a feasible depth is?
A No. The client would -- if they have a -- a suggested depth they would like to have and -- I would -- I would assume many times it's based on volume requirements. We -- we design for that condition.
Q Are there any aspects of the subsurface that may lead you, from an engineering viewpoint, to recommend a different depth?
A No --
Q Say if a client comes to you --

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A If -- if they wanted a certain depth, we -- I mean, it may -- it may change design. In some cases, if you're below groundwater, we have to add dewatering systems and consider ballasts. It -- at certain depths, it may -- is may alter or influence the slopes.
But we design for whatever condition they want. We alter the design to fit the required -- the depth.
Q Did you make any alterations to the design in this case to accommodate the requested depth?
A None that I recall.
Q How can the depth of an excavation influence the design of the slopes at a landfill?
A Well, it depends on what -- the materials they're encountering.
Q If the materials encountered are clay, how can the depth of the excavation influence the slope of the landfill?
A Well, clay is a very general term. It's the condition of the clays. So when I -- when I say depth, is, if you encounter materials that would tend to be unstable at certain depths, you may have to go with a different slope configuration.
Q And what type of different slope consideration would you need to go with?

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A A slope that you could -- I mean, when I say "slope configuration," the -- the actual slope, the -- the rise to run. The slope may change depending on the materials encountered.
Q So as you get more shallow, would the slope get steeper or a lower gradient?
A It's -- it's -- I mean, generally, it's material-dependent.
Q Uh-huh.
A It's dependent on the materials. I'm saying that's just one of the things that has to be considered, is the -- the sidewall slopes when you're looking at depth of excavation.
Q But is it dependent on both material and depth of excavation? Let me rephrase.
Is it dependent on both the type of material and the excavation and the depth of the excavation?
A Yes. It depends on the geometry of the excavation, which is the -- the -- includes the depth and the materials that it's encountering.
Q So all other things being equal, if you get a more shallow excavation, how does that influence the design of the landfill above it?
A The design of the landfill above it, the more

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shallow?
Q Uh-huh.
A There's not a -- there's not a -- a characteristic that I can think of that -- I mean, nothing general to make a statement about.
Q Is there any aspect of the geotechnical design that a shallower landfill would influence?
A No. I mean, the design -- the -- the design is, whatever parameters you are, you look at the materials that you're encountering.
Q Uh-huh. What are the slopes of this landfill on the slide slope?
A I believe these will be four-to-one.
Q Are those consistent with the slopes that have been used in other landfills?
A I see more three-to-one slopes than four-to-one slopes.
Q So is this steeper than what you normally see?
A No. It's flatter.
Q It's more flatter.
Let me provide you with a document.
MR. ALLMON: I ask that this be marked as Exhibit 2.
(Adams Exhibit No. 2 marked)
Q (BY MR. ALLMON) I'm going to place a document

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in front of you. Can you identify that document?
A It's the 130 Environmental Park Appendix D5-A, Settlement/Heave Analysis.
Q And did you prepare this document?
A Yes.
Q If you could open this document, could you generally describe the process used in determining the potential heave, the maker of the landfill?
A The heave?
Q Perhaps explain in layman's terms somewhat the process you went through here on the settlement/heave analysis.
A Okay. We -- I developed a profile through the landfill and the subsurface. And what I'm looking for is to calculate the heave analysis before excavation begins; what is the actual -- the stress at depth below the -- the landfill? And then I recalculate the stress after the excavation has been completed and then use that to calculate how much heave should be expected.
Q And when we say "stress," what do you mean with the term "stress" in this context?
A I mean how much in -- simple terms, how much weight does it see.
Q Okay. In this analysis presented, D5-A-1, is this for a particular cell at the landfill?

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A It looks like I -- it looks like I used Cell 10.
Q Okay. So this is only for one portion of the landfill, this particular analysis here?
A Uh-huh.
Q And how many cells are at the landfill?
A I don't recall.
Q Did you perform a heave analysis for each cell or only this cell?
A For the heave analysis, I -- I generally will prepare that for the deepest excavation, because that was where I would expect to see the most heave.
Q And when you say the "deepest," is that the furthest beneath the ground surface?
A Yes.
Q So --
A And it -- well, it's depending on two things. It's the relationship of the excavation and how much of -- in this case of -- you know, what's the material under it.
Q So it's your opinion that Cell 10 is the one with the most and the kind of materials above the bottom of the cell?
A It's my material [sic] that Cell 10 was the proper one to look at for heave.

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Q Okay. Is there any other cell where it could be that the change in stress could be greater?
A I would have to go and -- and look at that.
Q But as you look at this now, do you know whether this is the worst-case scenario?
A I don't -- I don't remember.
Q Now, what -- as we look at the -- say we've got a chart here with assumptions. What was the basis of your moisture determination?
A The moisture determination was average from laboratory tests.
Q And which laboratory tests did you use for that?
A Moisture content.
Q And were there particular borings that you relied on?
A No. That's the average for Layer II.
Q And so did you rely on your laboratory samples to determine that?
A Yes.
Q Were there any particular laboratory samples you relied on?
A Yes. The laboratory samples from -- the samples from Layer II.
Q Okay. But I guess I'm asking, did you average

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samples from Layer II for every boring that you have at the site or only particular borings?
A **For every boring.**
Q Is the same true for dry weight? Was that an average of every boring at the site?
A **Yes.**
Q And what about -- well, is that true of all the parameters listed here where you've got a reference to A?
A **Yes.**
Q Did those -- what type of variance was there in the value of those parameters between the borings at the site?
A **I don't recall.**
Q So how did the -- so you don't know how the average related to the bearings?
A **I said I don't remember.**
Q You don't remember.
Now, could the heave analysis -- could the quantity of heave be impacted by the particular qualities in a particular cell? In other words, if your -- well, the parameters at the top reflect certain physical properties. Is that correct?
A **Yes.**
Q And are those physical properties listed below?

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In other words, if we look at an equation below that, certain -- "R" is heave in feet?
A **Yes.**
Q And then our "Cr" is the compression index?
A **Yes.**
Q And that's one of the ones in which you used samples for to determine?
A **Yes.**
Q And those sample values, are those specific to Cell 10?
A **No -- not that I remember.**
Q So you used a value -- you don't remember whether those are specific to Cell 10 or not?
A **No, I don't remember if they're specific to Cell 10.**
Q And, likewise, the P naught was initial overburden pressure. Do you know if those values were specific to Cell 10?
A **The -- they are -- that's a calculated value based on the wet weight. The wet weights are based on average laboratory tests.**
Q Uh-huh.
A **The calculation is based on the depth of excavation at Cell 10.**
Q Now, let me -- give me just a second.

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Let me place --
MR. ALLMON: Let me ask a document be labeled as Exhibit 3.
(Adams Exhibit No. 3 marked)
Q (BY MR. ALLMON) Let me place before you a document. Do you recognize the document I've placed before you?
A **Yes.**
Q What is this document?
A **This is the excavation plan.**
Q Okay. And do you see Cell 10 there?
A **Yes.**
Q What's the depth of the excavation there?
A **Around -- it looks like from that one, around the edge and the sump would be 518.**
Q And let me provide you with a second document. Exhibit 4.
(Adams Exhibit No. 4 marked)
Q (BY MR. ALLMON) Do you recognize Exhibit 4?
A **Yes.**
Q What is this?
A **The general site plan.**
Q Does this generally reflect the natural topography of the site?
A **Yes.**

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Q Are you able to recognize the general area where Cell 10 would be on this?
A **Yes.**
Q So essentially this -- the difference between the natural topography and the excavation depth is kind of the overburden, currently. Would that be proper to say?
A **Yes.**
Q What is the rough -- kind of the overburden at Cell 10?
A **It varies from five -- it looks like from -- about 550 to about 580.**
Q And that's in comparison to the -- what's the depth of excavation there again?
A **It looks like it goes from about 518 to about 536.**
Q So what's the -- the amount of material that naturally is in top -- on top of that excavation in Cell 10?
A **On the western side, about 22 feet, to 36 to 80 to about -- I would -- it looks like it's going to be roughly between 30 feet and 50 feet.**
Q And would that be, as we look at -- where -- was that 50 foot used at any point in this heave analysis you performed?

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A Yeah. If you looked at the -- if you'll look at the diagram --
Q Uh-huh.
A -- we went from 588 to 534.
Q Now -- so essentially, roughly, 50 feet there?
A Yeah, roughly 50 feet.
Q Now, could you look with me at, say, Cell 14.
A Uh-huh.
Q What's the excavation depth there?
A It goes from -- it looks like about 534 and goes up to about 548.
Q And what's the natural elevation there?
A It looks like it's running about -- around 570, somewhere in the 580 range.
Q So what's the difference in Cell 14?
A Oh, somewhere near 40 feet.
Q Now, does it go up to around 590 there in Cell 14?
A It looks like it's going to go up in the floor area up to about 588.
Q Well, let's look. Here you've got it curving in in the upper left hand of Cell 14?
A Uh-huh.
Q And what's the contour line on that point under natural gradient?

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A At the curve? Yeah, but that -- that's not in the floor of the -- yeah, that's 590 --
Q I'm looking at natural. So about 590?
A Yeah.
Q And then at that point in the --
A At that point of -- at -- that 590 does not extend over the floor of 14. It looks to me like it curves.
Q So you're saying that 590 is not above Cell 14?
A I'm saying that that -- it's -- these are on different scales.
Q Uh-huh.
A So looking -- to me, it looks like it's probably not.
Q If we assume it was, what's the difference between that 590 and the point --
A Where it crosses?
Q -- 14, where it crosses?
A It -- it looks like it would be about 42 feet.
Q Is the nature -- the quality of the soil different at different points on the site?
A On this site, it's pretty much consistent from top to bottom.
Q Now, if that -- what is the -- again, the shallowest depth in Cell 14?

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A Like, about 448.
Q Looking back at the heave analysis -- let's see. Now, the items here -- were there any -- what parameters did you use values other than those based on laboratory tests?
Did you use any of those in the heave analysis?
A Not in the heave analysis.
Q Okay. Are there any factors that may influence the heave analysis?
A The heave -- the -- the weight of the material above it and before, pre-excavation, and the weight post-excavation. And then the -- we run the consolidation tests. You see the recompression index --
Q Uh-huh.
A -- that influences the result.
Q Now -- and let's look at Cell 5 again. What is the depth of the excavation in Cell 5?
A It looks like it goes from about 506 all the way up to about 542.
Q And so at that 506 level of excavation, what's the elevation of the natural soil?
A Well, it looks to be around 530.
Q So what's the depth there?
A About 24 feet.

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Q So that's roughly half of what we were looking at over in Cell 10 or Cell 14?
A Roughly.
Q So there's a significant -- would you consider this a significant difference?
A Not really.
Q If we -- how would the change in stress be impacted if we're only removing 24 feet of overburden in comparison to removing 50 feet of overburden?
A You would have a smaller change in stress, so you would have less heave.
Q So could that then contribute to differential settlement?
A No. That's a different calculation.
Q Okay. Could that -- well, does the removal of overburden influence the settlement you're ultimately going to experience?
A It's going according to how fast it's removed.
Q But, ultimately, the overburden initially compared to the weight after construction is what's going to determine your settlement at a particular location?
A Yes.
Q So this is one element that influences the amount of stress, the change in stress before and after?

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A The overburden thickness?
Q Uh-huh.
A Well, the -- if you -- yeah, that -- that influences -- like I say, it's dependent -- it's time-dependent.
Q Okay.
A If it's excavated and left open, and then you come back in and -- and add the -- add the waste, and so, you know, we -- in a excavation, it's -- the material is not just automatically gone.
Q Uh-huh.
A It's time consistent. And so we run the settlement analysis from excavated condition to field condition.
Q Now, would it also influence your more long-term amount of settlement?
A Within the soil mass?
Q Within the soil mass beneath it.
A No. I mean, if -- if we were to look at the settlement the way we run it when we go from the excavation to the field condition, that would give us the maximum predicted settlement.
Q And could you have a different maximum depending on how much overburden you're removing?
A Not in the way that we're running it. If -- if

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there was more overburden, it would be less.
Q So -- but you're removing different amounts of weight essentially from the top of the soil?
A Right.
Q And essentially heave is how much it moves up in response to the removal of weight?
A Uh-huh.
Q And if you're removing weight, you're removing more stress. Is that correct?
A Uh-huh.
Q So as you remove more stress, does that generally lend to a greater level of heave?
A If you remove more, that would -- would give you more heave.
Q Okay. And if there's nothing else to counterbalance that, you're going to have different amounts of heave at those two sites?
A At two sites?
Q Say, comparing a situation where you've got less removed versus where you've got more removed, that's going to cause different amounts of heave?
A Yes.
Q So would you expect, comparing, say, Cell 4 to Cell 10, that you're going to have different levels of heave there, all other things being equal?

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A Yes.
Q Okay. And then could that then contribute to different levels of settlement ultimately?
A No. Because of the -- like I said -- as I mentioned, the time frame. The cell is excavated, and the heave occurs as it is being excavated. By the time we get to grade, then we recut. By the time we cut to final grade, the settlement is controlled by -- that's your beginning point on the settlement --
Q Okay.
A -- and it's controlled by how much waste is put above it.
Q Now let's turn then to the next page, your settlement heave analysis. How does this compare to the -- is this a different point in the landfill?
A It looks like this is also Cell 10.
Q And how does this analysis differ from the one we've just walked through?
A The one we just walked through went from natural ground to the bottom of the excavation.
Q Uh-huh.
A And this one goes from the bottom of the excavation back up to the top of the excavation. And we ran two points for differential. One of them is at the toe of the slope and one is out at some distance at the

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other end.
Q And how did you determine each of the values listed here in this table?
A Which table?
Q On, say, the initial and final overburden pressures. We got Layer I and Layer III.
A Those are calculated values.
Q And what was used to calculate those values?
A The unit weight and the depths.
Q And how was the unit weight determined?
A From the table on -- under assumptions.
Q And where does that assumption come from?
A From the laboratory data.
Q So, again, that's dependent on the accuracy of the laboratory data?
A Yes, it's dependent.
Q So how would a change in the unit weight influence the outcome of the analysis?
A Well, it's dependent on which layer it is. But if it -- more weight -- if -- if the weights were to be higher, there would be more settlement; if the weights were to be lower, there would be less settlement.
Q So is it fair to say that the accuracy of these calculations are dependent on the accuracy of the laboratory tests?

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A **Yes.**
Q Okay. And what particular laboratory tests were relied upon in determining these parameters?
A **Which parameters?**
Q Say, the unit weight.
A **The unit weight test.**
Q Were there specific borings looked at, or is that an average of all the borings?
A **That's an average of the borings at that layer.**
Q And that's of the -- now -- but say if you had pebbles in a particular layer of that area; would you have been able to do that type of test?
A **If it had pebbles, no.**
Q So that would be skewed towards areas where there would not pebbles --
A **It's --**
Q -- you only looked at sampling --
A **Well, the difference in unit weight between pebbles and not pebbles --**
Q Uh-huh.
A **-- and the thickness of that is negligible.**
Q At least in your opinion, it's negligible.
A **Yes. That's how -- that's how I performed the analysis.**
Q Now -- so other than unit weight, were any of

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these others based on laboratory readings?
A **In which table?**
Q The center of landfill, 2A, the initial and final overburden pressures.
A **No.**
Q What was the basis for these numbers?
A **Which numbers?**
Q Say, for instance, your final overburden of pressure; how did derive those numbers for final overburden? That's P sub F. How did you derive those numbers?
A **From the cross section that's presented.**
Q And what --
A **If you'll notice the settlement analysis point --**
Q Uh-huh.
A **-- is at elevation 4,099.**
Q Yeah. Uh-huh.
A **And so from 4,099, those -- those -- those depths are determined from the elevations above it.**
Q And how did -- was there a particular weight you used in determining that?
A **Yeah. The weight that's listed in the table.**
Q And how did you get that weight? What was that weight based on?

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A **That weight comes from the assumptions table.**
Q And what was that assumptions table basing that weight number on?
A **Those numbers are -- unit weight is calculated value from the moisture content and the dry unit weight.**
Q So those are based on laboratory values essentially?
A **Yes.**
Q Were there -- now, one of the references here is a publication "Geotechnical Practice for Waste Disposal" by Daniel -- David Daniel. How did that factor into your analysis here?
A **I don't recall.**
Q Now, what about the initial -- was the initial void ratio in the -- did that play a role in the heave analysis?
A **Yes. That's one of the parameters.**
Q And how did you determine the initial void ratio?
A **The initial void ratio was determined from the -- I believe consolidation curves.**
Q And where did you get those -- how did you develop consolidation curves?
A **I ran a consolidation test.**
Q And, again, was that sampling you -- a test you

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performed on the samples gathered?
A **Yes.**
Q Okay. So, again, that's another way in which the accuracy of these calculations depends on the accuracy of the test performed?
A **Yes.**
Q Were there any parameters used that were based on assumptions other than those gathered through the laboratory tests?
A **Yes.**
Q Which ones are those?
A **The wet -- unit weight of solid waste.**
Q So where is that listed in these tables?
A **On the assumptions table, bottom line.**
Q And what was the source of that assumption?
A **That is a -- that's a -- the 60 pounds is a standard number that we've used. It tends to be a little on the heavy side for solid waste, but for settlement analysis, it's a good number to use.**
Q So essentially, in layman's terms, that's the weight of the waste being placed back on top of the material?
A **Yes.**
Q Does that account for moisture in the waste?
A **Yes.**

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Q Is there any factors that could cause that weight to be higher?
A No, not -- 60 is -- is on the high end.
Q But is there anything that -- say, about waste in the material that could potentially cause it to be at a greater weight?
A It -- it could be -- it could be slightly higher.
Q And what types of things could cause it to be slightly higher?
A If an area was filled with more soil and less waste.
Q Is there anything else that could cause that weight to be slightly higher or cause it to be higher?
A Nothing comes to mind.
Q Is there anything that could cause that weight to be less than 60?
A Yes.
Q What types of things could cause it to be less?
A Poor compaction.
Q And so -- now, is compaction a result of simply kind of adequate operation of the landfill?
A Yeah, it's a operational feature.
Q Is there any other factor that could cause the weight to be less than that 60 pounds?

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A On the mass of -- I mean, it -- it's going to be a function of the composition of the waste and the -- that's put in.
COURT REPORTER: And the what's put in?
THE WITNESS: The composition.
Q (BY MR. ALLMON) And what other landfills do you base -- well, what other experience do you base your conclusion that 60 pounds is appropriate on?
A That -- that has been the -- it's a -- as -- that's been the number that -- as I've researched, that's slightly above the published numbers I've seen.
Q Where are those publications that you've looked at? What are those?
A Off the top of my head, I don't remember the names of any of them.
Q Is there anything other than those publications you reviewed that you think supports that 60 pounds?
A No. That's been the experience.
Now, the TCEQ in figuring ballast --
Q Uh-huh.
A -- requires that ballast be assumed at 44 pounds. So we take a number that's higher than their published value.
Q So in doing ballast, is -- that 44 pounds, TCEQ is trying to characterize the same physical property.

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Is that correct?
A Yes.
Q Essentially those are both ways to characterize the waste -- weight?
A Yes.
Q And they recommend the number of 44, whereas you're using a number of 60?
A Right.
Q How would the use of 44 influence the amount of heave you -- you would expect?
A It wouldn't.
Q Well, how would it influence the amount of settlement you would expect at a particular location?
A There would be less settlement.
Q Okay. Can the weight of the waste vary in different portions of the landfill?
A Yes.
Q Can the weight of industrial waste vary from that of municipal -- waste from, say, residences?
A Yeah.
Q How can it vary?
A It could vary.
Q Would industrial tend to be heavier or lighter?
A I don't know.
Q Could be either?

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A Yeah, it could be either.
Q What is the variance that you could see in the weight of waste?
A In -- in the in-place variance?
Q In-place variance.
A Typically, we -- we consider it's probably going to range somewhere between 30 pounds of cubic feet up to around 60.
Q And can the weight of the soil used as daily cover vary?
A The amount of -- yes, the amount of daily cover could value -- vary.
Q What types of liners are proposed at the landfill? Or is there a single type of liner proposed to be used?
A There's a single type to -- there's -- yes, there's a single type.
Q Okay.
Okay. You can put that aside.
Okay. Let me hand you Exhibit --
What -- what exhibit number is it?
COURT REPORTER: Five.
Q (BY MR. ALLMON) -- Exhibit -- what I'll have marked as Exhibit 5.
(Adams Exhibit No. 5 marked)

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Q (BY MR. ALLMON) Do you recognize Exhibit 5?
A **Yes.**
Q What is this document?
A **130 Environmental Park, Appendix D5-B, Slope Stability Analyses.**
Q And did you seal this document?
A **Yes.**
Q Could you generally describe how the slope stability -- how this slope stability analysis was performed?
A **Yes.**
Q Would you please do so.
A **The slope stability analysis was performed under several sliding mechanisms. We -- or I performed that for a circular failure, a sliding block failure, and then a veneer failure of the liner and the final cover systems.**
Q Was this, again, based on laboratory tests?
A **Parts of it.**
Q Turn to D5-D-4. Under "References," reference three references to tests by TRI for Biggs & Mathews. Is that correct?
A **Yes.**
Q And then are those tests attached to this report?

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A **Yes.**
Q Well, I guess they are not. Those were attachments for -- that are not actually part of the document here.
Do you -- or did they test all borings or -- can you turn to those?
A **Yes. Turn the page over.**
Q Okay. What borings were tested by TRI?
A **None of the borings were tested by TRI.**
Q Yes. Which ones?
A **None.**
Q None.
What borings are -- what samples -- well, does this present a friction test report for BME-1 soil?
A **Excuse me?**
Q For -- the tested interface is BME-1.
A **Yes.**
Q Does that reflect a sample that was taken from boring BME-1?
A **No.**
Q What does that indicate?
A **That is -- that is Test No. BME-1. That was TRI's designation.**
Q Was that -- so they were testing a particular sample there?

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A **Not from this site.**
Q Not from this site.
So this isn't actually a test report of any materials specific to the landfill site?
A **Not to this site.**
Q Do you know what this material was associated with?
A **I don't remember which -- the actual location of this material. This is -- but it's -- yeah, this -- this one, I -- I can't remember where this material came from.**
Q So you don't know how these test results relate to the material -- the soil at the site?
A **I don't know that these test results will be representative of the materials at the site.**
Q And what is the basis of your opinion that these would be representative?
A **Because these are the type materials that will be used under the stress conditions we anticipate.**
Q So are these -- do these materials include -- do these tests include a testing of soil or are these just testing the membrane?
A **They -- some of both. If you'll look at the first one --**
Q Uh-huh.

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A **-- that is the test of soil against a textured membrane.**
The next one is soil against a double-sided geocomposite.
The next one is a double-sided geocomposite versus a textured geomembrane.
Q But the soils used in these tests are not from the site?
A **No. And neither are the membranes.**
Q And so, again, how is it that, say, the soil in this initial test -- how is it that -- what's your basis for an opinion that that soil is representative of the soil at the site?
A **Well, it is a soil -- that particular soil was remolded to an 87 pounds per cubic feet at an optimum moisture of 26.3. That's very typical for these type of soils remolded for a liner.**
Q Now -- but does any of this relate to the in situ characteristics of the soil?
A **No. These -- these tests -- these Cr tests --**
Q Uh-huh.
A **-- are only for the liner system itself --**
Q Okay.
A **-- which does not exist yet.**
Q So none of these tests relate to the interface

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between the natural soil and the liner?
A No. They -- they relate between the layers of the liner system.
Q Okay. So really this -- how would that slope stability -- how would this testing change from one landfill to another?
A From one landfill to another?
Q Yeah.
A It would -- site specific when you get to the point of construction and you actually choose a material to use --
Q Uh-huh.
A -- then it could have slight variations. But as far as the results, they're more dependent on the -- the configuration of the landfill, the loading.
Q So would you run -- but you're not going to run new tests? These are the tests that are going to be -- that are relied on to determine the -- the slope stability?
A These are the tests that are relied on to run the slope stability for the permit.
Q Uh-huh.
A For construction, there will be site-specific tests run.
Q Okay. When will those be run?

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A They'll be run at the point of construction in accordance with the Attachment D7 requirements.
Q And what is the advantage of having site-specific tests?
A It allows -- at that time, you can check to be sure that -- that the membrane that you purchase --
Q Uh-huh.
A -- will -- will work as you expected it to.
Q And will those site-specific tests incorporate use of the actual soil at the site?
A Yes.
Q And what's the advantage of using -- being able to use the actual soil at the site?
A It gives you a site-specific value.
Q Okay. Could that influence your predicted slope stability?
A It could. It -- it could. I would not expect it, and I've not seen values to alter substantially from any of these values.
Q So how are the site-specific soil qualities incorporated into your slope stability analysis?
A The site-specific are the qualities that we use for the in situ materials.
Q Okay. And where is that reflected in this analysis?

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A If you'll look at -- in the top, a stratum one clay and a stratum two clay.
Q And, again, which page are you referring to?
A D5, B4.
Q Okay. And so it's the moisture and the dry weight?
A Yes.
Q What about the wet weight?
A The wet weight is a calculated value.
Q Okay. And what's the basis of that calculation?
A If you'll look at D, it's the dry weight times one plus the moisture content.
Q So, again, that's also based on the tests at the site?
A Yes.
Q Okay. And if we look down to the next table here, the strength parameters for circular and sliding -- and sliding block slope stability, this relied -- the solid waste cohesion, what was used to determine that number?
A Those were tests, laboratory tests.
Q Well, I guess I see a D indicated there for solid waste.
A Oh, for solid waste?

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Q Yeah.
A Yeah. Yeah, solid waste is a D.
Q Is that Reference 4?
A Yes.
Q And what is Reference 4?
A Reference 4 is a -- is a -- a book.
Q So that's -- those are general assumptions?
A Yes.
Q Was there any site-specific analysis done to determine the applicability of that general assumption?
A No. The solid waste doesn't exist yet at that site.
Q Okay. How did you -- well, did you determine that those numbers were representative of the solid waste that would be applied at the site?
A Those numbers tend to be a little bit low from what -- but -- but they're -- they're a conservative number that -- that we've -- we've used for a number of years.
Q Okay. And have you -- have you looked at actual testing of solid waste to determine if those are accurate numbers to use?
A The testing I've seen of solid waste shows that those numbers would be a little bit higher.
Q How would those numbers being a bit higher

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influence the outcome here?
A It would raise the factors -- calculated factors of safety.
Q So if it were lower, would that -- how would that influence the factor of safety?
A It would lower the factor of safety.
Q And as we lower the factor of safety, does that make it more likely or less likely you're going to see a failure?
A Lower factor of safety would be more likely to see a failure.
Q Have you done any looking at the particular type of waste anticipated to be accepted at this landfill?
A Not beyond the -- they are -- the types of waste that are allowed at a municipal solid waste facility.
Q Have you done any specific study to determine whether -- what those qualities will be in comparison to normal facilities?
A Nothing specific.
Q Okay. And now when we look at C for our geomembrane soil lier -- liner cohesion, again, that's based on these TRI tests we were just looking at?
A Yes.

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Q So, again, those are tests that did not involve a look at the specific soil at the site?
A Correct.
Q Correct.
And when we look at B, so the liner cover and compacted clay, what are the bases of those numbers?
A Those numbers were the bases -- those were taken to be the same as the stratum one and stratum two clay, since it will be -- since it will be constructed from the same materials.
Q Okay. And, again, that's based on the sampling and the tests done at the site?
A Yes.
Q Was this evaluation modified at any point as you went through the analysis?
A Not -- I mean, not after the final was done.
Q What type of -- well, did you perform -- and were some of -- was this analysis applied to the final cover slope?
A Yes.
Q Now, in doing that, is that final cover going to have certain trenches on it for storm water runoff?
A Not trenches.
Q Is it going to have storm water runoff controls on the final cover?

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A Yes.
Q Were those factored into this -- into this analysis?
A The -- are you talking about -- can you be more --
Q The slope stability.
A The slope stability?
Q Yeah. Was the weight of those storm water control measures factored into your slope stability analysis?
A No. That geometry was not part of it.
Q Okay. Would those -- and that would involve the placement of berms essentially. Is that correct?
A Yes.
Q Was the weight of those berms incorporated in the stability analysis?
A No.
Q What type of failure -- well, let me ask you, could those berms influence the slope stability?
A They're not large enough to -- to appreciably affect the number.
Q Did you look at the weight of those berms?
A No. But I have before.
Q Okay. But, in this case, did you do any specific evaluation --

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A No.
Q -- of the weight of the berms?
Did you look at the weight there if you had water captured in those berms?
A No. If you look at the -- these -- these -- under the berms, there is a drainage geocomposite, and so they will be -- they will be drained.
Q Okay. And what page are you now looking at?
A I'm looking at D5, B15.
Q But that's just -- that's related to the water that would be captured in the berms and not the weight of the berms themselves?
A No. What I'm saying is that the -- the berm -- the soil above this on the slopes for the berms will have a drainage layer below it. So we do not -- we do not calculate -- we calculate that as a wet unit weight, but not a saturated unit weight.
Q But -- so does your analysis fully account for the weight of those berms?
A The weight of the berms?
Q Yes.
A No. The berms are not added into the geometry.
Q How could additional weight influence the potential for a slope failure?
A It may -- depending on the application of

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weight, it could be less likely.
Q Could it make it more likely?
A It could be more likely.
Q What type of failure would it make more likely? Would it make a block failure more likely?
A A berm?
Q A berm.
A It wouldn't influence it.
Q Would it influence the potential for a circular failure?
A No.
Q What type of failure would it influence?
A A veneer sliding failure.
Q Could you describe what a veneer sliding failure is?
A That is the erosion layer --
Q Uh-huh.
A -- just sliding off of the membrane.
Q And how is it that a berm would cause a veneer failure?
A It wouldn't cause a veneer failure. I said it would change the -- the dynamics would change.
The difference is, you add more weight so you have more driving force for it to slide; at the same time, you increase the -- by adding more weight, you

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increase the resisting friction.
Q Okay. So it depends on the slope?
A It depends on the slope and the -- and the -- and the material.
Q And would a steeper slope make a failure more likely of that type?
A Well, typically, a veneer failure will be more -- the steeper the slope, the more likely.
Q Okay. Is the soil at this site -- how does its erosion potential compare to normal -- to other soils?
A Can you be more specific?
Q Is the soil of this type particularly susceptible to erosion?
A I would not anticipate it to be.
Q Did you perform an analysis to look at that?
A For erosion?
Q For erosion.
A No.
Q No.
So you have no basis to determine whether it's more apt or less apt to be eroded?
A Well, I don't know what apt is. I don't know what the normal of erosion is.
Q Okay. Well, are there -- say, when the USDA NRCS rates soils, does it look at erodibility?

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A Yeah, there are soils that are -- that -- that would be very erodible. These type of soils would not be.
Q Okay. So you have looked at that?
A No. I'm just telling you I -- I know just from -- from experience and knowledge, I know that these type soils -- typically, these types of highly plastic clays are not erodible -- are not highly erodible. That would be more silty sandy materials.
MR. ALLMON: Okay. I think this would be a good time for a break. Now, did we want to go off the record?
MR. RYAN: Yeah.
VIDEOGRAPHER: It is 12:19, and we're off the record.
(Break taken)
VIDEOGRAPHER: It is 1:42, and we are back on the record.
Q (BY MR. ALLMON) Okay, Mr. Adams. Now, I'm going to stick with the slope stability analysis for another few minutes.
You've discussed that the 60 pounds is the more conservative number for -- of waste than, say, the 44 used for ballast. Why is it you consider 60 pounds to be more conservative?

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A Because the 60 pounds will produce more of a driving force to cause the slope stability failure.
Q So it would cause more of a driving force to cause a failure?
A It would -- yeah, it would -- it would result in a higher driving force.
Q And how does that make it more conservative?
A Than the -- the factor of safety for stability is the forces that are attempting to make the -- the waste slide.
Q Uh-huh.
A Divide -- if you take that and you divide by the resisting force --
Q Uh-huh.
A -- I mean, resisting force divided by the sliding force. So if you have more sliding force --
Q Uh-huh.
A -- and resisting force stays the same, the factor of safety would go down.
Q Okay. And we discussed the -- the storm water berms on the side of the landfill.
Now, if the -- and you said you did not consider the weight of those berms in the stability analysis. Is that correct?
A Correct.

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Q Now, if it were after a rainfall event and the soil on that final cover were saturated, how would that impact the strength of the soil?

A If it were -- if it were saturated and you -- the strength could be -- of the soil itself could be lower.

Q Lower.

And would that increase or decrease the likeliness of a slope failure?

A If -- well, if the veneer -- the veneer --

Q Uh-huh.

A -- analysis is at the interface between the soil and the underlying geocomposite, not within the soil itself.

Q So would a saturated soil impact the potential for a failure at that interface?

A If it was -- if you didn't have a drainage layer there to prevent the pore pressures from developing.

Q So -- but, now, could there be a failure that would develop within the soil?

In other words, could a plane within the soil be the failure plane rather than the plane between -- the interface between the liner --

A I've never seen any indication that that --

that that would happen.

Q Okay. And if there would, a saturated soil would weaken the interface between the soil and the membrane?

A Well, the interface is between the -- where the berms are is between the soil and the geocomposite.

Q Okay.

A It's a different type of material. And the geocomposite itself prevents pore pressures from developing along that interface.

Q But relatively -- so it's your opinion that the saturation of the soil would not alter the concentration of water there at that interface?

A Correct.

Q Correct.

And so the saturation of the soil, in your opinion, would not influence the potential for a slope failure?

A That's accounted for in the design.

Q Okay. And if you could turn with me to the stability analysis again, looking at the TRI laboratory results, so we're looking at Page D5-B-5, what is the tested interface there?

A That is soil versus a textured geomembrane.

Q So BME-1 versus 60 mil? The -- the D5-B-5 is

BME-1 soil versus 60-mil HDPE textured membrane?

A Yes.

Q And then looking at -- let's turn to Page D5-B-8, so a few pages afterwards. What is the title for that test?

A BME-1 soil versus 60-mil textured -- textured geomembrane.

Q So do these both indicate the same type of tested material?

A The same materials. They're tested under different loads.

Q Okay. So what is the difference in loads being tested?

A If you go back to Page D5-B-5 --

Q Yes.

A -- if you'll look there, that there is a test point at a normal stress of 100 pounds per square-foot, 300 pounds per square-foot, and 500 pounds per square-foot.

Q And just to be clear, could you indicate to me where that's shown on this page?

A That is shown in the diagram in the upper left-hand portion of the page.

Q Okay. And now -- and what numbers -- could you give those numbers again and reflect where they're

indicated there.

A If you'll look across -- if you'll look at this graph, there's some points. If you'll look across the bottom axis where it says "Normal Stress PSF" --

Q Uh-huh.

A -- you'll see a point lines up with 100, 300, 500.

Q So you're saying going left to right -- is there a legend there that -- so is -- you're saying that that first one is equivalent to 100?

A I'm saying that that sheer stress on the vertical axis is what was measured at a normal stress of 100.

Q Okay. And in the second -- so we're talking about the triangle with the square around it?

A They -- they were both there.

Q Both there.

And then the next one you're saying was 300?

A Yes.

Q And the last -- the furthest to the right is 500?

A Correct.

Q And that produced a friction angle of -- peak of 10.6, looking at the test results to the right?

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A Yeah, the -- I get a friction angle of 27.6.
COURT REPORTER: I'm sorry?
Q (BY MR. ALLMON) Okay. Yeah. Let me make sure -- all right. I apologize. I need to make sure -- okay.
I was looking at the --
A Oh, okay.
Q My fault.
So that produced a friction angle of 27.6?
A Yes.
Q Whereas, as we look to Page 8, what's the friction angle there?
A 5.2.
Q And why is it that those would produce a different peak friction angle?
A Because the tests are tests that are run at different normal stress.
Q And how is it that a different normal stress would cause a difference in the peak friction angle?
What physical mechanism is at work there to cause that difference?
A Well, we -- I mean, that's where we run the test at different loadings. Because, under lighting load -- lighter loadings --
Q Uh-huh.

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A -- friction angles are high, and cohesion is low.
Under heavy loads, friction angle becomes low, and cohesion becomes higher.
Q And in layman's terms, is there something the friction angle would equate to kind of in layman's terms?
A Nothing I can think of off the top of my head.
Q Okay. And would that also be the reason why, if you look between B5 and B8, you see the difference in the interceptor adhesion?
A Yes.
Q Okay. Is that difference of any significance in your evaluation?
A Yes. We use -- when we run the veneer --
Q Uh-huh.
A -- stability analysis, the veneer tests are for -- there's no waste on it. It's for the soil over the material.
Q Okay.
A That's what the test for the lighter loads are.
Q Okay.
A That is to represent that loading condition.
Q Uh-huh.
A When we run the sliding block test for the

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field landfill, we use these tests that were run under the heavier loads to approximate how the material performs under a heavier load.
Q Okay. You can put that aside for a moment.
Now, let's look again at the excavation plan. And that's Exhibit -- Exhibit 3. Is that correct?
A 3.
Q 3.
Now, how would you describe the shape of the landfill?
A Irregular.
Q Okay. Does that -- is that normal for a landfill shape?
A There's no normal shape. It's -- it's how it fits onto a piece of property.
Q Okay. Are landfills normally characterized by straight edges along sides?
A There's no normal.
Q Okay. Now, why do you -- do you have an opinion as to why the landfill is shaped in this configuration?
A Yes. Because it -- that's how it fits between the -- I believe if we look -- the hundred-year floodplain.

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Q Now, would the shape of this landfill present any challenges in the construction of the landfill?
A No.
Q How would trying to work with this shape differ from working with, say, if you had a rectangular landfill?
A As far as the earthwork, it would be no difference.
Q What about other aspects of the construction?
A There would be -- within the -- laying the membrane --
Q Uh-huh.
A -- you would have on a -- a irregular shape would have more seams.
Q And when a leak occurs at a landfill, are seams one of the most likely places to see a leak?
A I have not seen a leak at a landfill. I don't know.
Q Okay. So if there were to be a leak, what -- and if there were to be a leak, are the seams one of the weak points in a landfill liner?
A No. Not after we install it. We -- we test the seams. And they're actually stronger than the parent material.
Q Okay. Other than the need for more seams, is

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there any other way in which the -- this shape of the landfill, as opposed to a rectangular landfill, would influence the constructability?

A No.

Q Okay. Would it alter the expense of the construction to deal with these types of -- this type of a configuration?

A No.

Q And so would it differ in the type of equipment to be used?

A No.

Q Okay. Did you seal the general facility design?

A I would have to look at it and see.

Q Let me go ahead and give you another --

MR. ALLMON: Let me have this marked as Exhibit --

COURT REPORTER: 6.

MR. ALLMON: -- 6.

(Adams Exhibit No. 6 marked)

Q (BY MR. ALLMON) Let me place a document -- place Exhibit 6 in front of you. Do you recognize this document?

A Yes.

Q What is this document?

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A This is Attachment B, General Facility Design.

Q And did you seal this document?

A Yes, I did.

Q In sealing the document, did you intend to endorse the entirety of the document?

A Yes.

Q So are endangered species dealt with within this report? Well, let me withdraw that question.

Could you turn -- could you turn with me to Page B9 in this report and look with me in the second paragraph there. Do you want to review that paragraph real quickly?

A Okay.

Q What does this say with regard to the discharge of contaminated water at the facility?

How will contaminated water at the facility be discharged?

A This says the contaminated water will be discharged to the surface water management system to be constructed.

Q And how would you describe the surface water management system at the landfill?

A Well, there's several pieces to it. There is the drainage facilities, and then there's those facilities that are dictated by Attachment D6, the leachate contaminated water plan.

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Q So would the drainage facilities include the on-site retention ponds?

A They -- they would.

Q So is it possible that contaminated water may be discharged into the detention ponds?

A No. That's prohibited by Attachment 6.

Q Well, would that be consistent with this statement here?

A Yes.

Q So is this statement true?

A Yeah, the -- the surface water management system is a term that would include all of the systems. The detention ponds are one part of that system.

Q But by this, you didn't mean that -- but this doesn't have that limitation in it now, does it?

A Well --

Q In other words, this -- this text here does not limit it to any particular part of the surface water management system?

A It's not intended to. It is -- that text right there describes that it will be handled by the surface water management system. Surface water management system has several components designed for different items.

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Q One of the components being the detention ponds?

A Yes.

Q Okay. But you're saying that it would not be discharged into the detention ponds?

A No. Contaminated water is managed in accordance with the requirements of Attachment D6.

Q Okay. So one can look at this and determine the full scope of how contaminated water will be handled?

A No. That's not the intent of this.

Q Okay. Now, what would be the consequence if contaminated water were discharged into the on-site detention ponds?

A Excuse me?

Q What would be the consequence if one did discharge contaminated water into the on-site detention ponds?

A Then before it could be -- before it could leave the detention pond, it would have to be tested to see what the parameters of it were.

Q Would a permit be required then for the discharge of that water from the detention ponds if it were to contain contaminated water?

Would a separate water quality permit be

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required?
A I -- I don't know about that.
Q Okay.
Okay. You can put that aside for the moment.
MR. ALLMON: Let me have this marked as Exhibit 7.
(Adams Exhibit No. 7 marked)
Q (BY MR. ALLMON) Let me place Exhibit 7 before you. Do you recognize Exhibit 7?
A Yes.
Q What is this document?
A It is a landfill section, typical landfill Section 3.
Q Okay. Now, does this show some of the terraces on the site of the -- well, will there be terraces on the site of the landfill as storm water control measures?
A Yes.
Q Are those terraces shown on this cross section?
A No.
Q Okay. How would the slope of the site of the landfill impact the ability of those terraces to stay on the landfill?
A They're designed -- they'll stay on

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four-to-one.
Q Okay. What type of study have you done to determine that that would be the case?
A Those are -- are what we build multiple times. That's the standard configuration.
Q Now, how will -- how will the slope impact erosion?
How would the slope of the site of the landfill impact the potential for erosion?
A I guess I'm not -- I'm not clear --
Q Would a steeper slope be more likely to cause erosion than a shallow slope?
A Yes.
Q Okay. What do you expect would be the slope of the sides of the berms?
A The berms?
Q The berms themselves.
A The inside slopes may run from two-to-one to three-to-one. The outside slopes are typically two-and-a-half-to-one to three-to-one.
Q Did you look at the potential for the erosion of a two-to-one slope, say the slope on the berm of two-to-one?
A No.
Q No.

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Do you have an opinion as to whether a slope on the site of this landfill with a two-to-one slope would be susceptible to erosion?
A If it's -- when -- when fully constructed and vegetated, my opinion is it would not be.
Q What about prior to the vegetation taking hold?
A It's a maintenance issue.
Q Okay. Now, of course, we've got periods of drought in this area and others. You are familiar with that?
A Yes.
Q So if a period of drought -- there were not enough water to keep vegetation there, do you have an opinion as to whether a two-to-one slope there would be susceptible to erosion?
A Typically, the -- the two-to-one slopes, the erosion occurs before grass is established. After it's established, that's not been a problem.
Q So if we did not have grass established with the two-to-one slope here on a berm, would that be susceptible to erosion?
A As -- as in any construction project, yes.
Q Okay. And it would be more likely at a two-to-one angle than the four-to-one angle shown here?
A Well, yeah, the -- actually, the two-to-one --

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no, because the two-to-one angle is not as long as the four-to-one angle. It's very short.
Q Okay. Have you done any specific evaluation of the two-to-one angle for the berm slopes on the site of the landfill?
A Evaluation of what part of them?
Q The potential for a slope failure.
A For a slope failure of the two-to-one, no.
Q And have you done an evaluation of the potential for erosion along that?
A No.
Q Okay. What would be the sequences if you had a slope failure of one of these berms on the site of the landfill?
A Of the berm itself?
Q The berm itself.
A We would -- after the rainfall event, we'd have to put it back.
Q What -- would there be any problems that may occur prior to its being put back?
A It would just not carry the water through that berm; it would go to the next one below it.
Q Okay. And how would that influence the rate at which water left the landfill?
A It wouldn't.

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Q Did you do any evaluation of the operation of the drainage system if one or more of these berms were to collapse?
A No. The operation of the drainage system was not part of the work that I did.
Q Okay. You can put that aside for the moment. Let me provide you with Exhibit --
MR. ALLMON: Is this 8? May I have this marked as Exhibit 8.
(Adams Exhibit No. 8 marked)
Q (BY MR. ALLMON) I've placed before you Exhibit 8. Are you familiar -- do you recognize this?
A Yes.
Q What is this?
A This is the drainage structure plan.
Q Okay. Does this show the terraces on it?
A Yes.
Q And how are those indicated on here?
A By a dashed and dotted line with a arrow.
Q So what's roughly the distance between the terraces as you move up the landfill?
A I don't know.
Q Is -- is there a scale to this drawing?
A Yes. It looks like it's on a 1 inch equals 600.

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Q And are you able to look at that scale and the depiction of the terraces to determine roughly what the interval is between those?
A No.
Q Now, let's look back at -- and I know we have a lot of documents here.
On the excavation plan, do you see where Pond 2 would be located on this plan?
A Yes.
Q Could you mark on the excavation plan which is -- could you mark Pond 2.
A Do you want me to?
Q Yes. Please, go ahead.
A Okay.
Q What is the depth of the excavation there adjacent to Pond 2?
A It runs from about 506 up to about 526.
Q Do you know what roughly the level of water would be in Ponds 2 there?
A No.
Q Okay.
MR. ALLMON: What's the next one?
COURT REPORTER: 9.
MR. ALLMON: If I can have Exhibit 9 marked.

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(Adams Exhibit No. 9 marked)
Q (BY MR. ALLMON) Do you recognize -- I'm going to place Exhibit 9 before you. Do you recognize this?
A It is --
Q Is this a cross section --
A Pond 2 --
Q -- of Pond 2?
Does this reflect the level of water -- well, let me ask you to look at Section A on this depiction. Does that show the water surface within Pond 2?
A It appears to.
Q And what's the water surface, say, in the 25-year water surface?
A It says 527.90.
Q And how does that compare with the depth of excavation adjacent to it?
A That's probably -- it looks like the adjacent to it, it runs about up to 526.
Q And is that the lower point, around 510?
A Huh?
Q The excavation shown on the excavation plan, does that go to a depth of around 510 feet?
A Oh, about -- it looks like about 506.
Q Okay. So what distance above the bottom of the

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excavation, say, would the water be in that pond?
A At its deepest point, the -- the difference would be roughly 20 feet.
Q So the pond is about 20 feet above the excavation?
A The top of the water surface, not -- not the bottom of the pond.
Q And, say, at the 100-year level, it's higher than that? The water within the pond is higher during the hundred year? It's more around 530 if we looked at Exhibit 9?
A Yes, sir.
Q Yes.
Okay. Now, what is the -- and how is that water in Pond 2 separated from the landfill?
A By the perimeter berm of the landfill.
Q Okay. What material will that perimeter berm be comprised of?
A On-site material -- soils.
Q Is there any standard for the permeability of that soil?
A Not for the permeability.
Q Okay.
A It's the general -- that's general hard fill.
Q And in the application, there's no standard,

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say, that would be applied in that construction for permeability?

A Not for permeability.

Q So what is -- is there -- so is there a potential for water to leak out of -- migrate out of this storm water pond?

A No. I don't see -- no.

Q If you don't know the permeability of that material around it, what's the basis of your conclusion that water will not leak out of the pond?

A I didn't say I didn't know the permeability. I said there's not a requirement for permeability.

Q So would any testing be done to determine the permeability?

A No. It's not required.

Q But -- and this is a constructed pond?

A Correct.

Q So what would assure that a certain level of permeability is going to be met?

A The on-site soils we have are highly plastic clays, and they will be put in under moisture and density control.

Q Is there any requirement to ensure a lack of hydraulic conductivity as those are put in?

A Not for hydraulic conductivity.

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Q Okay. If water were to migrate from this pond, could it then reach the liner of the landfill?

A No. It would much more likely migrate to the -- if -- if it were to go through the berm, it would go through the berm opposite of the landfill.

Q Okay. What -- on what do you base that opinion?

A Because that's a shorter path.

Q Okay. Now, have you done any looking to see whether that would be the case?

A No.

Q Did you look at the stability of the berms around this type of pond?

A Yes --

Q Okay.

A -- or not the pond itself. I looked at the stability of berms at the landfill.

Q Okay.

A And the ones we looked at were larger than this -- this berm.

Q Okay. What would be the -- do you have an opinion as to the impact if the clay portion of the composite liner were to be saturated?

A It becomes less permeable.

Q Okay. Now, at that point, if we -- and let's back up.

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A composite liner, how is it -- what are the elements of a composite liner?

A This composite liner --

Q Uh-huh.

A -- has two feet of clay.

Q Uh-huh.

A It has a 60-mil HDPE geomembrane. It has a geocomposite drainage layer and then another 2 feet of protective soil cover.

Q And that protective soil -- so that's -- and so we're working our way in that description from the bottom of the liner to the top of the liner?

A Yes.

Q If that bottom clay were saturated, do you have an opinion as to how that would impact the protectiveness of the liner to prevent a leak?

A Well, the -- the bottom clay is constructed at or above its optimal moisture content. And so if -- if it becomes -- that's near saturation point.

Q Uh-huh.

A If it becomes wetter, it -- it won't become any less permeable.

Q But would it become -- would it alter its resistance to a leak?

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A To a leak?

Q To a leak from the landfill.

A No way that I can imagine.

Q Okay. Is there a reservoir on site? Or is there a soil conservation service reservoir near the site?

A Yes.

Q Okay. Is it downstream of the landfill?

A I don't recall. It's near the -- it's -- it's -- it would be south.

Q Okay. Let me hand you --

MR. ALLMON: Now we're on Exhibit 10 --

COURT REPORTER: Yes.

Q (BY MR. ALLMON) -- Exhibit 10.

(Adams Exhibit No. 10 marked)

Q (BY MR. ALLMON) Okay. I've placed before you Exhibit 10. Have you seen this document before?

A No.

Q So have you done any research regarding the reservoir near the landfill?

A No.

Q Okay. If you would turn with me to Page 1 of the report, looking at the second paragraph on this report -- do you want to review that real fast? I'm going to ask you a question about the second paragraph

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there.
What hazard level was this dam designed and constructed at?
A **Low-hazard dam.**
Q Okay. Are you familiar in any way with the design of the dams for this type of reservoir?
A **No.**
Q Now, do you -- when was -- looking at Page 2, when was this reservoir constructed?
A **1962.**
Q Okay. Have construction techniques advanced since 1962?
A **I assume they have.**
Q Okay. Now, as part of your geotechnical analysis, did you do any geotechnical evaluation of this dam shortly downstream?
A **No.**
Q So do you have any opinion as to the integrity of the dam?
A **No.**
Q Do you have any opinion as to the potential for the dam to fail?
A **No.**
Q Okay. If you would look with me at Page 3, as we just discussed -- if you look with me to the

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paragraph under "Hydrology and Hydraulic Analyses," does that have anything to say about the proper classification of the dam at this point in terms of hazard?
A **I don't know.**
Q Let me -- if you look in that -- do you see where it says "however, due to encroachment by urban development, the dam has been reclassified as high hazard"? Do you see where it says that in approximately the middle of the paragraph?
A **Oh, yes.**
Q Okay. And does this dam meet the requirements for a high hazard classification?
A **I don't know.**
Q That's not something you've looked at?
A **No.**
Q Okay. Now, do you know if anyone else has looked at the integrity of the dam?
A **I don't know.**
Q So -- okay. Do you know if anyone associated with the Applicant has evaluated the integrity of the dam under the conditions?
A **I don't know.**
Q Do you know how this landfill may change the volume of water behind the dam?

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A **I don't know that.**
Q Okay. Let me hand you what --
MR. ALLMON: I guess we're to Exhibit 11?
COURT REPORTER: Yes.
Q (BY MR. ALLMON) -- what'll be marked as Exhibit 11.
(Adams Exhibit No. 11 marked)
Q (BY MR. ALLMON) There you go. Could you take a look at Exhibit 11. Do you recognize this?
A **Yes.**
Q What is this document?
A **The leachate collection system plan.**
Q Okay. And how is the leachate collection system depicted on this drawing?
A **The leachate trenches down the middle of the cell are shown by a -- appears to be a double line.**
Q Uh-huh.
A **The leachate sump is depicted by a black square. And the leachate riser is depicted by a solid line. And the leachate riser vault is -- well, that's too small for me to tell what it's depicted by, but it's the top of the riser.**
Q Okay. Now, will the leachate need to be pressurized in order to carry it to the leachate storage tanks?

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A **Yes.**
Q Yes. Okay.
Would the shape of the landfill in any way influence the ability to install the leachate collection system?
A **No.**
Q Now, does this cross -- as we move from the landfill to the storage tank, does this cross one of the water features on site?
A **Well, it doesn't depict it on this drawing, but...**
Q Okay. And, again, we just get into a lot of documents here.
MR. ALLMON: So if I could get this marked as 12.
(Adams Exhibit No. 12 marked)
Q (BY MR. ALLMON) I've handed you Exhibit 12. Does Exhibit 12 depict the extent of the floodplain under developed conditions?
A **"Postdeveloped Floodplain Workmap Detail."**
Yes.
Q And so let's look at -- so as the leachate crosses from the landfill to the storage tanks, does it go across one of the areas within the hundred-year floodplain?

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A Yes.
Q Okay. Are there any particular measures that will be taken to protect that leachate as it crosses the hundred-year floodplain?
A Yes. If you'll notice on the top left-hand corner of drawing D3.3.
Q Uh-huh.
A The leachate forcemain is dual contained.
Q And is that double contained throughout the landfill or only there in that area underneath the floodplain?
A Anywhere -- anywhere outside the land -- the cells themselves.
Q What will be the composition of that -- that pipe going from the landfill to the storage tanks?
A That's listed in -- shown in the -- Attachment D6.
Q Do you have a general idea of how that would --
A It will be high-density polyethylene pipe, but I do not recall the specs of that pipe.
Q Will there be joints in that pipe?
A Yes.
Q And approximately what would be the distance between joints in the pipe?
A I would have to look back and see the size of

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the pipe. I don't remember the size of that pipe.
Q Would you expect there to be some joints within the scope of the floodplain?
A I wouldn't know without seeing the sizing.
Q Is a leak more likely at a joint than it is anywhere else in the piping system?
A No.
Q Okay. What are the types of material contained in landfill leachate?
A Depending on the liner, it would typically be organic, organic-type material.
Q Can there be VOCs contained in leachate?
A There could be. But they're not a -- not typically a large component of them.
Q Can there be anything that's generally continered -- considered a contaminant contained in leachate?
A A contaminant?
Q Yeah.
A By definition, leachate is a contaminant.
Q What are the constituents of leachate that may be considered harmful -- potentially harmful?
A I'm not prepared to address the constituents of leachate.
Q So have you -- you're not familiar with what

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leachate contains in particular?
A Yes. But it's different from site to site from time to time.
Q Now, as we look at this floodplain on Exhibit 12, what is the distance on the western side of the landfill between the landfill footprint and the floodplain?
A I don't know the actual distance. There's some -- there's a few places along where -- where there -- it looks like the floodplain comes up to the perimeter berm.
Q Now, would that have any consequences for the construction activities at the landfill?
A No.
Q Would it reduce the area that may be used for staging adjacent to the landfill?
A No.
Q Would you be as free to operate equipment around the landfill considering that proximity to the floodplain?
A Yes.
Q Would you be able to put storage -- soil storage piles within those floodplains?
A No.
Q Is that specifically -- are storage piles

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limited to being within the flood -- footprint of the landfill within the application?
A No.
Q Okay. Is there anything that would prohibit the location of those soil piles within the floodplain?
A Yes. My understanding is that you can't -- you don't fill within a floodplain.
Q Is that specifically addressed within the site operating plan?
A I would suspect so. But I didn't -- I was not responsible for the site operating plan.
Q So you don't know?
A No.
Q And you don't know whether it's addressed anywhere else in the application?
A I can't tell you whether it is or not.
Q Does the proximity of the floodplain raise any concerns for you with regard to the landfill?
A No.
Q And do you think -- how does the floodplain presence influence the shape of the landfill?
A The landfill was designed to stay out of the floodplain, to avoid it.
Q And you're not yourself an expert on floodplains?

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A **No. I did not do that portion of the work.**
Q Now, how was -- have you determined the sizing of the pumps in the leachate collection system?
A **I don't recall. I would have to look back at the permit.**
Q Did you determine the sizing of the leachate storage tanks?
A **That was given to me by the client.**
Q Okay. And did you have any opinion as to whether those were -- those sizes were feasible or not feasible?
A **They are on the larger end of what we typically see.**
Q Okay. And so, generally, do you evaluate those types of things where a client asks you -- says, this is what we want, do you generally evaluate that to see if it's feasible from an engineering viewpoint?
A **No. If they ask for something that's available, I think these -- whatever these sizes were are available.**
Q Generally speaking, in a landfill, different parameters a client may request, do you evaluate those to determine whether they're feasible from an engineering standpoint?
A **Which parameters?**

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Q Say -- we'll go back to the excavation depth we addressed earlier. If a client asked you for a particular excavation depth, do you evaluate that for engineering feasibility?
A **I guess I don't understand what -- I mean, if -- if they asked for a particular excavation depth, we design to that depth.**
Q Are there any circumstances that may limit the appropriate depth at a landfill?
A **It's dependent -- I mean, if -- if you have shallow rock and you do not want to excavate rock, that would limit it. If you don't mind excavating rock, it doesn't limit it.**
Q Are there any limitations that may cause a concern to have an excavation that's too shallow?
A **If you -- if you're -- are too shallow --**
Q Uh-huh.
A **-- sometimes your stability of sliding could be a concern; and so you have to change the materials that you use on the floor.**
Q And how would the stability for sliding be of concern if you're too shallow?
A **You don't have as much of a berm or a -- or a toe on the waste fill to hold it in place.**
Q How is it that a toe prevents -- so are we saying that a toe prevents a slope failure?
A **That a berm provides resistance to a slope failure.**
Q And so if it's a more shallow landfill, you have less resistance to a failure?
A **If you have -- if you have short berms also.**
Q Okay.
A **It's just -- I mean, the geometry can dictate.**
Q Okay. And by "geometry," we're not talking about the profile of the landfill, as well as, say, the horizontal geometry?
A **I'm talking about the geometry in the vertical --**
Q Okay.
A **-- not in plan view.**
Q Uh-huh.
Does the -- you sealed the closure plan. Is that correct?
A **I believe so, yes.**
Q And so did you develop that plan?
A **Yes.**
Q What type of vegetation does it state may be used on the final cover?
A **I don't recall.**
Q And what type of storm water control measures does it say may be used?
A **Storm water control measures would be shown in, I believe, Attachment C.**
Q Okay. Let me go ahead and --
MR. ALLMON: What exhibit number are we on now?
COURT REPORTER: 13.
MR. ALLMON: Let me have this marked as Exhibit 13.
(Adams Exhibit No. 13 marked)
Q (BY MR. ALLMON) I've placed before you Exhibit 13. Do you recognize that document?
A **Yes.**
Q What is that document?
A **It's a Attachment H Closure Plan. It looks like it is pages H-1 through H-8.**
Q Okay. And did you seal this?
A **Yes.**
Q If you would turn with me to Page H-2, looking at the second full paragraph there, what type of vegetation does it say may be used?
A **Both native and introduced grasses.**
Q Will there be any criteria to determine which will be used in a particular area?
A **Not in a particular area. It is -- that's**

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generally dependent upon the time of year that you're planting. And when we get to that point, we'll take recommendations from the contractor that does the vegetation.

Q And what will be used to make sure that the native and the introduced grasses are maintained?

A Well, there's -- they are -- when you do a final cover, then those have -- they're part of the inspection reports. So they get routinely inspected.

Q Are there any particular limits on what type of introduced grasses would be allowed?

A Not -- not that we've placed on it.

Q Now -- and what type of -- looking further in that same paragraph, what type of erosion control measures does it indicate may be used?

A It indicates silt fences, straw bales.

Q Are there any other type of control measures listed here?

A Not as erosion control measures.

Q Are the berms accounted for in this final cover design?

A Yeah, they're part of the final cover design.

Q Is it -- let's look at -- now -- and as we look at 3.2.1 on Page H-4, you state that the largest area requiring final cover is approximately 75 acres. What's

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the basis of that opinion?

A I would have to look. There's a map that would be in Attachment J, I believe. Or is it in this one?

Yeah, that would be in Attachment J. There's a map. I could show you on the map.

MR. ALLMON: I think it's time for a break real quick for the sake of the videographer.

VIDEOGRAPHER: It's 2:37. We're off the record.

(Break taken)

VIDEOGRAPHER: It's 2:52, and we're back on the record.

Q (BY MR. ALLMON) Okay, Mr. Adams. I don't have this exhibit, but I'll just show you drawing J.1. Do you recognize that?

A Yes.

Q What -- what drawing are you looking at at that point?

A Drawing J.1, Largest Area Requiring Final Closure.

Q And is this what depicts the area you believe will require final closure --

A Yes.

Q -- or at least the largest area --

A The largest area.

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Q And could you generally describe where that's located?

A It would be in roughly the northern half of the landfill footprint.

Q And how is it that you determined that that would be the largest area requiring final cover?

A We -- we looked at potential cover scenarios and -- and how far they would -- would get. And that yielded as -- the way the landfill sequencing works out --

Q Uh-huh.

A -- and the geometry --

Q Uh-huh.

A -- that would end up being -- smaller areas could be closed up to that point. But once we got to there, that would be the large -- the geometry would just dictate it.

Q And when you say smaller areas could be closed up 'til you get there, what's the process by which those could be closed?

A Well, final cover could be constructed over other -- smaller areas.

Q And what's the process by which that final cover would be constructed over prior areas?

A Well, the landfill -- trash is brought to the

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final trash grades --

Q Uh-huh.

A -- and then we hire a contractor. And they come and build the final cover system over -- over the area and then install the drainage features over that area and vegetate it.

Q And how does the size of the final area impact the cost of closure?

A It's -- the -- the larger the area, the larger the closure -- final closure cost.

Q All right. Okay. Thank you.

And we discussed the allowance for both native and introduced grasses in the closure plan. Did you review recommendations from the Texas Parks & Wildlife Department in developing the closure plan?

A No.

Q So you wouldn't know whether they recommended using only native grasses?

A No.

Q Okay. Do you think that their input would be important in developing the closure plan?

A No.

Q Okay. Do you think that measures to protect endangered species would be important in the development of the closure plan?

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A Measures protecting endangered species are addressed in the endangered species section, and they -- as far as I know, and in the site operating plan. And so they would -- excuse me. That would be covered under the site operating plan.

Q But you don't look to any measures needed to protect endangered or threatened species as you look at the closure plan?

A Not at the closure plan, no.

Q Okay. And do you look at any of those as you look at the post-closure plan?

A No.

Q Okay. Does the post-closure plan allow for the post-closure period to be shortened?

A I don't remember. I would have to look at that one.

Q I'll give you --

MR. ALLMON: What are we on now?

COURT REPORTER: 14.

MR. ALLMON: I'm going to have this marked as Exhibit 14.

(Adams Exhibit No. 14 marked)

Q (BY MR. ALLMON) Do you now have before you Exhibit 14?

A Yes.

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Q What is this document?

A Attachment I, Postclosure Plan. It looks like it's Pages I-1 through I-6.

Q And did you seal this document?

A Yes.

Q If you could turn to me to Page I-3 at 2.2. What does that paragraph deal with?

A Decreasing post-closure care period.

Q And so does this allow a decrease of the post-closure period upon request?

A Yes.

Q What are the -- and it identifies applicable documentation. Do you see that, where it's got a separate -- a sentence on the type of applicable documentation that may be submitted to that end?

A Yes, I see that.

Q Yes.

Is flooding anything considered here?

Is the potential for flooding a consideration in whether to decrease the post-closure care period?

A I guess I'm not following you.

Decrease for the -- because of the potential for flooding?

Q Yeah.

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As we look at the type of documentation to be considered in decrease in post-closure period, that's where we've got data on monitoring ground water, surface water leachate levels, and landfill gas. Do you see that there?

A Yes.

Q So flooding isn't listed?

A It's not listed.

Q Okay. Is the potential for flooding something that would be considered in whether to decrease the post-closure care period?

A It -- what would be considered would be what would be requested by the TCEQ.

Q Okay. And in the post-closure care period, is there any provision to ensure the proper operation of the detention ponds on site?

A Yes.

Q And what is that?

A On Page I-2, under Section 21, it says, In a period of maintenance or remediation activities, as needed, to maintain the integrity and effectiveness of the final cover, site vegetation, and storm water drainage appurtenances.

Q And will those be maintained after the post-closure care period terminates?

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A That, I can't address. I didn't -- this plan goes through the end of post-closure care.

Q What will happen to those storm water drainage appurtenances after the end of the post-closure care period?

A I have not addressed that.

Q Okay. So will -- do you have any assurances that those will continue to function to reduce the runoff from the landfill site?

A I -- I haven't -- yeah, they -- they should continue. After the post-closure care period, they should continue to operate.

Q Do they require maintenance in order to operate properly?

A Not -- only in the early years.

Q Well, for instance, don't they have, say, drains in each of the -- of the retention ponds? Is that correct?

A I don't know. I have not -- I have not reviewed or looked at those designs in two years.

Q Okay. And are there any maintenance activities required in association with the detention ponds on site in order to ensure they're operating properly?

A During site operation and during -- when you're initially doing closure --

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Q Uh-huh.
A **-- typically you get sedimentation and have to clean them out until vegetation is established.**
Q Okay. Are there anything -- any types of unclogging that's required?
A **I can't think of anything.**
Q Once maintenance of those -- well, so, once maintenance of those ends, would you expect sediment to accumulate within those ponds?
A **No.**
Q Well, I thought you just said that there would be sediment that may accumulate during operation.
A **Yeah, while you're establishing vegetation.**
Q So if you were in a period of drought, could that lead to sediment running off into the ponds?
A **No. Typically, the ones we've seen in periods of drought, the vegetation and the soil cover doesn't go away.**
Q Okay. Now -- so it's your opinion that the sedimentation -- the retention ponds will continue to function after the post-closure care period just as they do during the operation and during the post-closure care?
A **That would be my opinion.**
Q And it's your opinion that no maintenance is

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required in order to ensure that that would happen?
A **Yes.**
Q Okay. Now -- and if we look at Page I-4 of the post-closure plan, do you list a person there as being responsible for overseeing the post-closure care?
A **No.**
Q What's indicated here is just an address. Is that correct?
A **Yes.**
Q Do you know, do the rules require the identification of a person?
A **I do not recall.**
Q So do you know whether listing of an address meets the requirement to that rule or not?
A **This was -- this was what was submitted and was approved.**
Q Okay. But you don't -- you can't sit here -- as you sit here right now, do you know whether that satisfies the requirement of the rules?
A **I believe it does.**
Q Okay. Whose address is this that's listed?
A **I don't know.**
Q Is this an address in Texas?
A **It says Canton, Georgia.**
Q Okay. Who -- was this address provided to you?

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A **Yes.**
Q Who provided you with this address?
A **This address would be provided by Bill Hodges.**
Q Who is Bill Hodges associated with?
A **HHNT.**
Q And what's HHNT's association with the project?
A **We are working for HHNT.**
Q Okay.
Okay. At this point, we may revisit some of the questions that we asked earlier this -- or at least go over some topics dealt with this morning.
MR. ALLMON: Are we on 13?
COURT REPORTER: 15.
MR. ALLMON: 15.
Q (BY MR. ALLMON) I'm going to have an exhibit marked as Exhibit 15 and hand that to you.
(Adams Exhibit No. 15 marked)
Q (BY MR. ALLMON) Now, I've placed before you Exhibit 15. Let me represent -- let me represent to you that this is an excerpt from the deposition of Mr. Snyder. Do you see -- I'm looking at Page 115, Line 12. There was a question asked there whether unweathered clay would have a higher unit dry weight than weathered clay. Do you see that question?
A **Yes.**

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Q And do you see where he said, "You'd have to talk to Greg about that"?
A **Yes.**
Q Do you have an opinion as to whether unweathered clay would have a higher unit dry weight than weathered clay?
A **That would be -- depending on the degree of weathering, they could be, but they could be the same.**
Q Now, do you consider that a geotechnical question or a geology question?
A **The unit dry weight would be a geotechnical question.**
Q Okay. And looking below that, we've got a question about who we would ask about permeability of clays. Would that be you who would address the permeability of clays?
A **Yes.**
Q And what is your opinion about the permeability of clay at the site?
A **Well, if -- if we had the -- I believe it's Attachment E, Appendix E5 has the lab test in it.**
Q Uh-huh.
A **That would -- that's where the permeability data is included.**
Q Okay. And now let me hand you Exhibit 16.

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MR. ALLMON: Well, I'll have this be marked as Exhibit 16.

(Adams Exhibit No. 16 marked)

Q (BY MR. ALLMON) And let me represent to you Exhibit 16 is also an excerpt from the deposition of Mr. Snyder.

Starting at Line 1 and referring to the borings, he states that they were drilled under his supervision while also -- but Greg Adams also had input. Is that accurate?

A I had input on the -- on the sampling procedures.

Q But you didn't have input on the location of the borings?

A No.

Q Or the depth of the borings?

A No.

Q And what was the type of your input on the drilling of the borings?

A My input was that I requested to have undisturbed samples at least as -- as deep as the post excavation and -- and some of the borings from each vicinity of the site.

Q Was there any other input that you had on the drilling of the borings?

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A No.

Q Okay. And now I'll hand you -- I'll mark this Exhibit 17.

(Adams Exhibit No. 17 marked)

Q (BY MR. ALLMON) And on Exhibit 17 -- I'll represent to you this is also an excerpt from Mr. Snyder's deposition. And there on Page 76, in response to a question of instructions given to the driller, it states that a decision was made between Greg Adams, being yourself, and Mr. Snyder and Stefan regarding the sampling protocol. Do you recall this type of decision?

A Yes.

Q And what was that decision?

A The decision was they told me where they were going to sample. And I said, Okay, that works for me.

Q So did you have any input into that?

A Yes. They asked me if it -- if it would suit the geotechnical needs.

Q So your input was simply -- was to approve it.

A Yes.

Q Without alteration?

A Yes.

Q Okay. And then looking down at Lines 23 through 24, it indicates you were at the site more often than Mr. Snyder. Is that -- do you see that?

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A Yes.

Q Do you -- is that accurate?

A I don't know how many times he was there.

Q Okay. Fair enough.

MR. ALLMON: Now, let me have this marked --

Are we on 17?

COURT REPORTER: 18.

MR. ALLMON: 18, Exhibit 18.

(Adams Exhibit No. 18 marked)

Q (BY MR. ALLMON) I've handed you Exhibit 18. I'll represent to you this is also an excerpt from the deposition of Mr. Snyder. Page 123, you see at Lines 15 to 16 he was asked what role he had in the excavation, what would be the excavation of the proposed landfill?

A Yes.

Q Do you see that?

And then Line 19 to 20, he was asked, "Who would have that decision-making authority?" It says that -- and he mentioned you, Greg Adams. Do you see that?

A Yes.

Q So did you have any decision-making authority in determining the excavation depth of the landfill?

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A Only into the final configuration. Bill Hodges directed the -- the general depths he wanted to achieve.

Q Uh-huh.

A And then -- so I reviewed the designer as -- just to be sure that we were within the parameters that he'd given us.

Q And what were those parameters?

A I think he said he wanted to keep it between -- somewhere in the neighborhood of 25 to 50 feet.

Q And is that 25 to 50 feet below ground surface?

A Uh-huh. Yes.

Q And what other parameters were you given with regard to the landfill?

A They requested four-to-one side slopes.

Q Were there any other parameters you were given?

A I don't recall any others.

Q So, then, who made the decision as to the shape of the landfill?

A The shape of the landfill? I don't know. When I started working on the excavation, that -- that shape had already been approved.

Q So when we mention determining what the excavation would be and you having a role, you weren't involved in that determination of the shape?

A Not in the shape.

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Q So -- so exactly what aspects of the configuration of the landfill were you involved in?
A In the depth of each cell and the layout of each cell. If you'll note the cross slope and down slope.
Q So kind of how the landfill was divided into cells?
A Yes.
Q Okay.
And so, likewise, if we look at Page 124, Lines 24 through 25, he was asked about who would've had a role in deciding about the excavation, and he mentioned you. Again, your only role was, as we discussed, the depth and the -- the depth, basically?
A And the configuration of the bottom.
Q The configuration --
A Yes.
Q -- of the bottom --
A Of the bottom.
Q -- but not the shape?
A Not the -- not the top shape.
Q And so on Page 125 -- well -- and as we've discussed the cells, did you have a role in determining the progression of fill in the cells?
A I would have to look back at the sequence of

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development plans, but I believe I did.
Q Okay. If you'll give me just a...
So I believe -- you believe you had a role in that decision?
A I do those sometimes, and sometimes I don't. And to be honest with you, I don't remember on this project if I had -- if I prepared a sequence of development plans or not.
Q And then looking at Page 126, Mr. Snyder -- and I'm looking at Lines 2 through 4 roughly there.
"Who would've had a role in determining whether adequate soils or clays -- clays exist for road construction?" You see that question posed to him?
A Yes.
Q And he said, "That would be a question for Greg Adams."
A Okay.
Q Now -- and I think we discussed this earlier. Have you done any kind of determination of whether soils exist for road construction?
A I have not done a formal determination.
Q So have you been asked to do any type of determination?
A I don't recall that.
Q So have you had a role in determining whether

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adequate soils or clays exist for road construction on the site?
A Well, as far as adequate to be used for that, yes. In the geotechnical report, we addressed general hard fill.
Q Okay. And in doing so, did you reach a conclusion as to the adequacy for road construction?
A They're suitable for road construction.
Q And what is the basis of your conclusion they're suitable for road construction?
A The soil is suitable. You design a road to the subgrade condition, not the subgrade to the road.
Q Well, but -- now, a road needs certain types of parameters for the subgrade in order to maintain its integrity. Is that correct?
A Yeah. But that's part of the pavement design.
Q But -- now, if you have -- can the pavement integrity be influenced by what's beneath it?
A Yes.
Q So if we have, say, a shrink-swell clay, can that influence the integrity of the roadway above?
A Yes.
Q And did you do any examination of whether the clays on this site have those type of expansive properties that would render -- that would influence

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their appropriateness for use beneath the roadway?
A Well, they would be appropriate. They would influence the pavement, but they're still appropriate. The pavement design would -- would be tailored to the soils.
Q Would you use soils from on site as subgrade for the roads?
A Yes.
Q So did you do any evaluation to see if they would be proper for subgrade?
A There's no evaluation to be done. They will -- they will be used, and the pavement will be designed based on those -- those subgrade.
Q And how would the -- how might the pavement need -- a design need to be adjusted in light of the qualities of the soil?
A Adjusted for -- I mean, I guess --
Q What types of adjustments do you occasionally need to make in the design of pavement in consideration of the qualities of the soil you're using as a subgrade?
A The -- I mean, the pavement thickness is a function of the subgrade soils.
Q Uh-huh. What would lead you to install a thicker pavement?
A Heavier loads and -- and either weak subgrade

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or -- yeah, weak subgrade.

Q And now --

MR. ALLMON: Where are we at now?

COURT REPORTER: 19.

Q (BY MR. ALLMON) I will hand you --

MR. ALLMON: Have this marked as Exhibit 19.

(Adams Exhibit No. 19 marked)

Q (BY MR. ALLMON) And, again, I represent to you that Exhibit 19 is an excerpt from Mr. Snyder's deposition. And there Mr. Snyder was asked a question regarding the borings and in Lines 6 through 12 discussed that he laid out -- well, that the laying out of the boring plan and the depths of borings in conjunction -- and then he says in Lines 10 through 12, "This was done in conjunction with my engineer partner, Greg Adams."

So what did you work on with him with regard to laying out of the boring plan and the depths of borings?

A I didn't work on laying out. He showed me the boring plan that he intended to use, and I told him that would satisfy the requirements that I had.

Q So that's the only manner you worked in conjunction with him --

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A Yes.

Q -- on that? Okay.

Now -- and he mentions directing the logger. Did you direct the logger in any way?

A No. We had discussions. And as -- as we got lab tests back, I relayed that to the logger so he would know what the materials were -- were testing as.

Q Okay. And then if we look at the bottom of that Page 39, he discusses the collection of samples and marked samples and field logs, and provided the costs. Do you see that?

A Yes.

Q And then it said it would've been to him and Greg Adams. Is that an accurate statement?

A Yes.

Q So were you -- so you were provided with field logs?

A Yes.

Q Okay. And those are the logs that have been discarded?

A Yes.

Q Okay.

MR. ALLMON: Do you want to take a quick break?

MR. RYAN: I don't need one.

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MR. ALLMON: Okay. Well, let me take a quick break. Five minutes or so.

MR. RYAN: Okay.

VIDEOGRAPHER: It's 3:21, and we're off the record.

(Break taken)

(Adams Exhibit No. 20 marked)

VIDEOGRAPHER: It's 3:31, and we are back on the record.

Q (BY MR. ALLMON) I'm having an exhibit marked as Exhibit 20. Place that before you. Do you recognize this Exhibit?

A Yes.

Q What is this?

A Drawing 2A.17, Cell 6 Development.

Q Okay. And did you seal this document?

A Yes.

Q Generally, what does this depict?

A It depicts the landfill development of -- it looks like during the time that Cell 6 would be filled and Cell 7 would be under construction.

Q So is this intended to depict the storm water controls that would be in place at that time?

A Yes.

Q And the contaminated water management

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facilities that would be in place at that time?

A It's not depicted -- the contaminant water -- where the contaminant berms are shown at Cell 6.

Q Okay. And so would -- how would -- so which portion of this would be producing contaminated water?

Where would the -- where would the working face be located here?

A The working face would be in the -- I guess if you look on -- it would be the east side, east of the Cell 6 indicator.

Q Uh-huh.

A And you see that there is a -- a label that says "working face."

Q And how was the contaminated water from that working face managed?

A By the contaminant berms to contain anything that comes in contact with the working face, and diversion berms to keep water from coming into contact with it.

Q And once that water gathers within that containment berm, where does it go?

A It has to be managed in accordance with the Attachment D6.

Q So would -- is that have anything to direct that flow or is -- or how is that gathered and taken

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into the contaminated water system?
A It -- it could be loaded into a truck.
Q So essentially pumped and then taken somewhere else?
A Yeah.
Q Now, what is there to capture water on, say, the northwest side of the developed area in that situation?
A The northwest side? Can you point where you're talking about?
Q Yes. This area right there. How would that drain?
A No, that -- that area would have -- it would either have daily cover or intermediate cover on it.
Q What type of drainage features would there be to capture that water?
A There's interim drainage features that -- that would be installed. They're part of the -- we've done those as part of the drainage design. But they're not shown on here.
Q Okay. So why are those not shown on here?
A They -- they're so small, they don't -- on these scales, they don't show up very well.
Q Okay. And could you describe what those measures would be?

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A Typically, if this is going to be intermediate cover, there will be earth or soil swales, berms and swales.
Q Did you evaluate the slope stability of this area with those types of features on those slopes?
A I did not put intermediate features on the slopes for the slope stability calculations.
Q Did you do slope evaluations of these kind of intermediate slopes?
A I did intermediate slopes of the landfill, yes.
Q But you didn't consider the storm water control measures that are not shown on here?
A No. The -- the -- the intermediate slope stability runs typically interior, not exterior, because they -- they -- they will be steeper slopes.
Q Okay. Yeah, so how does the water travel from the top there at -- say, at the 730-foot level down towards Pond 2?
A Towards Pond 2?
Q They're traveling to the northwest. How does that water travel?
A Well, depending on the -- depending on the statutes of the development --
Q Uh-huh.
A -- and if that's intermediate cover, there

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would be berms that would carry part of it around to the letdown that's on -- there's a letdown chute at the edge of -- of what's called final cover.
Q Okay. And could you describe -- do you have a pen there? Could you indicate which chute it is that you're referencing that would drain that north -- could you draw an arrow to reflect the drainage that you're describing.
A (Complies)
Q So it's your opinion that that water would flow around the side of that intermediate cover to the drainage chute?
A Some part of it would. And then depending on the conditions, there may be -- many times, we put temporary chutes in.
Q Okay. But this doesn't depict any chutes there on that northwest side of --
A No. This is -- this is intended to depict the stage of landfill development --
Q Uh-huh.
A -- but not all of the best management practices that will be in place.
Q So are you saying that there may be chutes installed that are not depicted on this drawing?
A Yes. Yeah, what -- those items are basically

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handled by Note No. 4.
Q Uh-huh.
A The run-on storm water control system will consist of the perimeter drainage and run-on storm water diversion berm and uncontaminated storm water sump. And then Notes 5, this refers to Attachment C for the storm water system's erosion settlement control plan.
Q Okay. Now, No. 4, of course, deals with run-on.
A Yes.
Q And so this isn't run-on that we're discussing here?
A Note 5 deals with that.
Q Okay. Now, is it your opinion that this runoff could be dealt with -- adequately with only the measures shown on this drawing without adding additional measures?
A I -- that's not the -- the purpose of this drawing. So I -- so, no, it's not my opinion that it can or can't be.
Q Is there anywhere that you specifically lay out the criteria to determine whether additional measures are needed?
A That would be in a part of the permit that I -- I do not -- the storm water portion of the permit.

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Q Okay. But I guess -- but -- now -- so you sealed this document. But, I guess, were you indicating -- so were you sealing it in effect endorsing the adequacy of the storm water control measures here?
A That's not the purpose of this drawing.
Q Okay.
A The purpose of this drawing is to depict the -- the field location and sequence of the development.
Q Okay. Now, where in the application is it -- are these temporary storm water controls depicted?
A I believe those would -- I believe those would be in Attachment C.
Q Were you responsible for Attachment C?
A No.
Q Who was responsible for that?
A I believe -- well, I don't --
Q Was that Mr. Traw?
A Either him or Kerry Maroney.
Q Okay. Now, if we were to put temporary controls on the site up here, what would be the impact of those, temporary storm water controls?
A The impact?
Q How would those assist in the management of storm water?
A They would -- they would direct the storm water

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to -- to the chutes, so -- so it would help reduce erosion.
Q And what type of -- when we say "chute," what in particular -- could you describe what a chute is comprised of?
A I don't -- like I said, not looking at Attachment C, I don't know what's proposed on this particular one.
Q Okay. So did you consider the location of those chutes with other temporary measures in looking at the slope stability here?
A No.
Q Could those potentially impact the stability of the slope?
A No.
Q And what's the basis of your opinion that those temporary measures would not influence the stability of the slope?
A Because they're -- they're surface features.
Q But they would have -- anything would have weight. Correct?
A Well, yes, anything would have weight.
Q And any time you're placing weight on a slope, that would impact the potential for a slope failure. Is that correct?

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A I wouldn't assume that those would be increasing the weight. They're actually -- the way they're constructed, the increase would be -- I don't know that there would be an increase.
Q But you didn't look specifically at what was proposed?
A No.
Q And so you didn't specifically look at what those weights would be?
A No.
Q And you didn't look specifically at how they might cause water to gather at those locations?
A I guess I'm not following that question.
Q The storm water controls, of course, are managing storm water.
A Yes.
Q And so as they direct water, you didn't look at what kind of influence having water gather in those areas would have on slope stability?
A Well, they direct water and they convey water. They're not detaining the water.
Q Did you specifically look as to the potential for water retention in those temporary measures?
A Within the temporary measures?
Q Within the temporary measures.

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A No. We -- the chutes are -- they're on four-to-one slopes. It would be really difficult to detain water --
Q Uh-huh.
A -- on a four-to-one slope.
Q What types of materials do the -- have you -- what types of materials are allowed to be considered for roadway construction at the site?
A I think those would probably be listed in Attachment D3.
Q Well, let me ask, do you have any particular criteria for the election -- selection of material for use on the roadways at the site?
A Nothing in particular. I mean, different roads get different surfaces. A lot of it depends on what the client wants it to be. I know that we -- we specify road surfaces in the permit. And I don't recall on this one what they are.
Q Are there any technical specifications that you've set forth applicable to the selection of material for the roadways?
A Not in the permit.
Q Okay. Do you know what those would be?
A The technical criteria?
Q Technical criteria for the roads.

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A **Yeah. One -- once you get ready to design the road, you'll have to know the weights of the traffic and the -- the number of vehicles and the service life that you want to design for and the type of pavement that you want.**

Q Have you done that analysis at this point?

A **No.**

Q So have you done an analysis to ensure that the roadways internally to the site would be adequate?

A **Internally to the site?**

Q The on-site roads will be adequate.

A **No. We'll design them to be -- we'll design them to meet the -- the criteria.**

Q But have you presented designs in the application that you know are sufficient?

A **We've presented the type of roads, but actual thickness and the actual design will come later.**

Q Okay. So, at this point, you don't know the particular design that will be used?

A **No. It's a performance-based design.**

Q Okay. Do the -- in the material accepted for the roads, does it include wood chips?

A **I don't recall.**

Q Do you think wood chips would be appropriate for use as a roadway surface?

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A **According to which roadway -- I mean, I've seen them used within filled areas under certain conditions, and they -- and they work all right.**

Q What type of conditions would it be appropriate to use wood chips as roadway material for?

A **Are we talking about this site or just in general?**

Q Well, let's talk about this site.

A **I don't know. I mean, typically, we would see -- where I've seen wood chips used before --**

Q Uh-huh.

A **-- would be during wet areas, to dry up wet spots in roads.**

Q Okay.

MR. ALLMON: I think I'll just take just a five-minute break real quick. I may well be finished, but I want to -- a few things.

MR. RYAN: Okay.

VIDEOGRAPHER: It's 3:46, and we're off the record.

(Break taken)

VIDEOGRAPHER: It's 3:55. We're back on the record.

Q (BY MR. ALLMON) Okay, Mr. Adams. I think I have just a few questions.

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Did you look into any history of gravel mining on the property?

A **No.**

Q Are you familiar with any history of gravel mining at the property?

A **No.**

Q How would that be relevant to a subsurface evaluation here?

A **I don't know of any way.**

Q Well, if mining had occurred for gravel on a property, does that give you any indication of what the subsurface is?

A **It would be gravel.**

Q Okay. And we mentioned that you did come across pebbles in some of the borings.

A **Yes.**

Q Were any samples sent to the lab that contained pebbles?

A **I don't recall. I would have to look.**

Q Would you have a representative picture of the subsurface if you didn't test any samples with pebbles in them?

A **No. They were -- were mostly surficial.**

Q Okay. Were some of them -- but if we were -- were any samples with pebbles at a deeper level, say,

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beneath the excavation depth of the landfill?

A **No.**

Q Okay. Do you have any opinion as to what the presence of pebbles may have indicated with regard to the presence of the Leona formation?

A **No.**

Q Because that's in the geology area. Is that correct?

A **Correct.**

Q Do most landfills have a slope of three-to-one on the top of them?

A **On the top?**

Q Yeah. The final cover slope.

A **No. Four-to-one seems to be more common.**

Q Okay. And why is this landfill use four-to-one slopes instead of three-to-one slopes?

A **On the -- on which -- which -- which face?**

Q On the excavation -- well, let's talk about the final slope. The top of the cover.

A **The top of the cover?**

Q What are the slopes used there?

A **Four-to-one.**

Q And so why is four-to-one used in this case rather that three-to-one?

A **That's what the client requested.**

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Q Okay. And so there's no technical reason for that selection?
A No. We were running the slope stability for whatever they requested and see what would -- would work.
Q Okay. And I think you testified earlier that the quality of the soil was consistent, I want to say, from top to bottom when looking at the heave and settlement analysis. Is it your opinion that the soil qualities are consistent, say, all the way down -- consistent for modeling purposes from the top of the surface level down to the base of the elevation?
A Yes.
Q So it's your opinion that the material is entirely homogeneous at the site?
A Well, I've never seen soil that's entirely homogeneous.
Q Uh-huh. What type of variations exist on the soil at this site?
A Well, it's the same type of material. There are differences in color. There are slight variations within moisture content and unit weight. And those will be shown in the lab testing.
Q What would cause the differences in unit weight at the site?

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A I have no answer for that. They are what they are.
Q Generally speaking, what would cause different areas of a soil to have different unit weights?
A Generally?
Q Just generally, yes.
A I mean, the unit -- the unit weight is -- is a function of the type of material. Now, within a profile of the same material, that -- they're not -- the unit weight is not always identical.
Q Do certain soils have a greater unit weight than other types of soils?
A Yes.
Q What -- how does clay compare -- say, how does a claystone compare to a sandstone in unit weight?
A Typically, sandier soils would be heavier.
Q Okay. Now, would additional borings on the site aid in confirming some of the information that's been gathered in the current existing boring program?
A It would not aid me.
Q Okay. Would it provide additional information?
A Well, it would naturally be more information.
Q And with more information, are you better able to characterize the subsurface?
A At this site, it wouldn't make any difference.

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Q Well, would an additional boring be able to -- if you were to drill a new boring and it showed some characteristics different than what have been found, would that be important to know? Let me back up.
Currently, you're assuming largely homogeneous material across the site?
A Uh-huh.
Q Would additional borings aid in determining whether that is, in fact, true?
A That it's homogeneous?
Q That it's homogeneous.
A It would be more -- it would be more information.
Q And allowing a greater level of -- would that allow a greater level of confidence in the conclusion?
A I don't know if it would be greater than what we already have.
Q Okay.
MR. ALLMON: That's all of my questions. I pass the witness.
MR. MAGEE: I don't have any questions at this time.
MR. RYAN: I don't have any questions.
MR. ALLMON: I suppose I should say I reserve cross.

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MR. RYAN: All right.
VIDEOGRAPHER: It is 4:01, and we're off the record.
(Proceedings concluded)

GREGORY W. ADAMS - November 04, 2015

CHANGES AND CORRECTIONS

WITNESS NAME: GREGORY W. ADAMS
DATE OF DEPOSITION: NOVEMBER 4, 2015

Reason Codes: (1) to clarify the record; (2) to conform to the facts; (3) to correct a transcription error; (4) other (please explain).

PAGE/LINE	CHANGE	REASON CODE

SIGNATURE

I, GREGORY W. ADAMS, have read the foregoing deposition and hereby affix my signature that same is true and correct, except as noted above.

_____ _____
GREGORY W. ADAMS

THE STATE OF _____)
COUNTY OF _____)

Before me, _____, on this day personally appeared GREGORY W. ADAMS, known to me or proved to me on the oath of _____ or through _____ (description of identity card or other document) to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he/she executed the same for the purpose and consideration therein expressed.

Given under my hand and seal of office on this _____ day of _____, _____.

_____
NOTARY PUBLIC IN AND FOR
THE STATE OF _____
My Commission Expires: _____

SOAH DOCKET NO. 582-15-2082
TCEQ DOCKET NO. 2015-0069-MSW

APPLICATION OF 130 ENVIRONMENTAL PARK, LLC, FOR PROPOSED PERMIT NO. 2383 § BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS

REPORTER'S CERTIFICATE
ORAL AND VIDEOTAPED DEPOSITION OF GREGORY W. ADAMS
November 4, 2015

I, Dalia F. Inman, Certified Shorthand Reporter in and for the State of Texas, hereby certify to the following:

That the witness, GREGORY W. ADAMS, was duly sworn and that the transcript of the deposition is a true record of the testimony given by the witness;

That the deposition transcript was duly submitted on _____ to the witness or to the attorney for the witness for examination, signature, and return to me by _____.

That pursuant to information given to the deposition officer at the time said testimony was taken, the following includes all parties of record and the amount of time used by each party at the time of the deposition:

Attorney for Protestants
Mr. Eric Allmon (04h:05m)
Ms. Marisa Perales (00h:00m)
Attorney for 130 Environmental Park, LLC
Mr. Brent W. Ryan (00h:00m)
Attorney for Plum Creek Preservation District
Mr. Robert Wilson (00h:00m)
Attorney for Caldwell County
Mr. J. Eric Magee (00h:00m)
Ms. Jordan Powell (00h:00m)

I further certify that I am neither counsel for, related to, nor employed by any of the parties in the action in which this proceeding was taken, and further that I am not financially or otherwise interested in the outcome of this action.

Certified to by me on this 9th day of November, 2015.



Dalia F. Inman, CSR 7423, RPR
Expiration: 12/31/2017
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SOAH DOCKET NO. 582-15-2082

TCEQ DOCKET NO. 2015-0069-MSW

APPLICATION OF 130 ENVIRONMENTAL PARK, LLC FOR PROPOSED PERMIT NO. 2383) BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS

ORAL AND VIDEOTAPED DEPOSITION OF

TYSON TRAW, P.E.

November 17, 2015

ORAL AND VIDEOTAPED DEPOSITION OF TYSON TRAW, P.E., produced as a witness at the instance of TJFA, LP and Environmental Protection in the Interest of Caldwell County and duly sworn, was taken in the above-styled and numbered cause on November 17th, 2015, from 9:42 a.m. to 3:38 p.m., before Candice Andino, Certified Shorthand Reporter in and for the State of Texas, Registered Merit Reporter, reported by computerized stenotype machine at the Law Offices of Frederick, Perales, Allmon & Rockwell, P.C., 707 Rio Grande, Suite 200, Austin, Texas, pursuant to the Texas Rules of Civil Procedure and the provisions stated on the record or attached hereto.

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Mr. Jeremy Garrett - Videographer
Mr. Dennis Hobbs
Mr. Steve Odil
Ms. D. Lauren Ross
Mr. Tracy A. Bratton
Mr. Mack Reynolds

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THE VIDEOGRAPHER: It is November 17th, 2015, 9:42 a.m., and we are on the record.

TYSON TRAW, P.E.,

having been first duly sworn, was examined and testified as follows:

EXAMINATION

BY MS. PERALES:

Q Good morning, Mr. Traw. For the record, can you state your name, please.

A Tyson Traw.

Q And I'm Marisa Perales. I'm the attorney for a couple of groups who are protesting a proposed landfill in Caldwell County, EPICC and TJFA.

Are you familiar with the -- with what I'm talking about, the proposed permit and the protesting parties? You know that the permit is being protested?

A Yes.

Q Okay. So have you had your deposition taken before?

A I have not.

Q Okay. Well, I'm going to go over just a couple of ground rules.

First, because it's being transcribed, it's important that we both make audible responses, so no -- well, you can shake or nod your head, but also, you have

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to verbally answer every question "yes" or "no" or however you need to answer it.

It's helpful if we don't speak over one another, so I will try to wait until you're finished with your response before I ask my question, and I'll ask that you wait until I finish my question before you start your response. That way it will come out clearly in the transcript.

Is that okay? Are you --

A Yes.

Q If you need a break at any point to -- just to get a drink of water or if you just want to take a short break, let me know, and we can arrange that. And if you have any trouble understanding any of my questions, let me know, and I'll try to rephrase it. Okay?

A (Witness nods head.)

Q So you have to audibly --

A Okay.

Q Okay. So a few minutes ago, Mr. Ryan handed me a couple of documents. And I guess I will get this one marked.

(Exhibit 1 marked.)

Q. (BY MS. PERALES) Can you identify this document that's been marked Exhibit 1?

A It looks like a -- a résumé.

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Q Is it your résumé?

A Yes.

Q And is that a résumé that you prepared yourself?

A I don't recall.

Q Could somebody else have prepared it?

A Possibly.

Q Okay. Does it appear to be accurate and up to date?

A Generally, yes.

Q Okay. Do you recall whether you provided that to Mr. Ryan?

A I -- I don't believe I did.

Q Okay. Were you asked to provide a résumé by Mr. Ryan or your project manager?

A I was asked to -- I don't recall.

Q Okay.

MS. PERALES: Can I get this marked.

THE VIDEOGRAPHER: Ms. Perales, I'm sorry. Mr. Traw, by any chance, do you have a cell phone in your pocket right there by the microphone?

THE WITNESS: No.

THE VIDEOGRAPHER: Sorry about that. Sorry, Candice.

(Exhibit 2 marked.)

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Q. (BY MS. PERALES) Okay. So I've handed you a document marked Exhibit 2.

Can you identify that document?

A Yes.

Q What is it?

A It's a -- an excerpt from a -- I believe it -- the -- I believe the title of the original document was "Design of Small Dams," and it was produced by the Bureau of Reclamation.

Q "Design of Small Dams"? Is that what you said?

A Uh-huh.

Q Is this a document that you have reviewed or relied upon in your work on the application for the 130 Environmental Park --

A Yes.

Q -- permit application?

And did you provide this excerpt to Mr. Ryan?

A Yes.

Q When did you do that?

A Yesterday.

Q And what motivated you to provide this excerpt to Mr. Ryan?

A Well, we had a conversation about the types of -- of things that may or may not be discoverable, and

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I had a question about -- my concern was this was available, and I didn't know if it needed to be included in those documents or not. So I brought that to his attention and we included it.

Q Okay. So you weren't certain whether you had provided it; is that right?

A I wasn't certain that I had provided it.

Q Okay. And what is your understanding about what is discoverable from you?

A Well, any type of reports or analyses that -- that were used to support the application, I guess.

Q What about any analysis that didn't necessarily support the application?

A I'm not -- I'm not sure I understand. Can you be specific or...

Q Sure.

If you came across any -- let's just say literature. Let's say you came across some literature or some analysis that was done by someone else that didn't support your opinions that are included in the application, but you reviewed it. Is that something that you would have produced?

A I'm still confused by the question.

Q Did you produce everything that you reviewed, whether you used it in preparing the application or not?

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A No.

Q Okay. So what types of material did you review that was not produced?

A I'm not sure. I -- I read a lot of things that are for various projects that may be for something else or may be for -- for this. I certainly didn't produce, you know, all the textbooks we have in our office or that kind of thing.

Q Okay. So textbooks might be one thing that you wouldn't have produced, because you rely on those generally for all sorts of projects; is that right?

A Yes.

Q Are there other types of materials that you might not have produced, but you might have reviewed in preparing the application materials?

A Possibly.

Q Like what?

A Maybe the Texas Administrative Code.

Q Okay. Any guidance documents?

A Guidance documents?

Q Uh-huh. Maybe TCEQ guidance documents?

A I don't think I reviewed any of those.

Q Okay. And the "Design of Small Dams," which is the source of Exhibit 2, is that a book that you regularly rely upon? Or what is it, first of all? Is

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it a book?

A I would say it's probably more like a technical report.

Q Okay. And you relied on it specifically for this permit application?

A Yes.

Q Okay. Well, let's go back to Exhibit 1 and go over your background.

MS. PERALES: Can I share yours?

MR. BRATTON: Uh-huh. Yeah.

Q. (BY MS. PERALES) So what -- what was your -- are you a professional engineer? Let's start with that.

A Yes.

Q Okay. And when did you become a professional engineer?

A I'm not sure, to be -- to be honest. I think it's probably in 2008 or 2009.

Q So it looks like you were in school through 2006; is that right?

A No.

Q Okay. After you received your bachelor's degree from University of Oklahoma in 2004, what did you do?

A I went to graduate school.

Q Okay. And was that was at the University of

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Oklahoma as well?

A Yes.

Q And were you also working in any professional capacity while you were going to school?

A Yes.

Q Okay. Tell me about that.

A I believe I went to work at Biggs & Mathews in August 2005.

Q And what was your role there?

A I was a staff engineer and an EIT.

Q What's an EIT?

A It stands for engineer in training.

Q Okay. And then you received your master's degree in 2006; is that right?

A Yes.

Q And so have you been with Biggs & Mathews since 2005?

A Yes.

Q Is that the only employer that you've worked for as a professional engineer or as an engineer in training?

A Yes.

Q Do you have any other professional degrees?

A No.

Q Did you have -- did -- were you required to

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have a sponsoring engineer or to apprentice for an engineer before you became a professional engineer?

A There -- there is a period of time as an engineer in training. I'm not sure that -- that it would be called a sponsor or an apprenticeship.

Q Okay. So how would you describe it?

A I -- I really can't recall what -- what the actual rules are for it, but -- but generally, you work -- you work under an engineer's guidance or supervision.

Q For how long?

A It can vary.

Q How long did you work under an engineer's guidance or supervision?

A Before I was licensed?

Q Yes.

A I'm not sure.

Q Is there a required amount of time that you have to be an engineer in training or work under somebody's supervision before you become a professional engineer?

A Yes.

Q And what is that amount of time?

A It varies.

Q Okay. And what was the amount of time that

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applied to you?

A I think -- and I'm -- I really -- I really kind of haven't gone over that in a long time. From my -- from my -- from the best I can recall, I believe it was three years.

Q Was there a particular engineer that was supervising or guiding your work?

A No.

Q Okay. Are you familiar with the rules that govern professional engineers?

A To a certain extent.

Q Are you familiar with which entity or board governs professional engineers?

A Yes.

Q Which board is that?

A I think it's the State Board of Professional Engineers.

Q Has a complaint or a grievance ever been filed against you?

A No.

Q Have you ever been convicted of any crime, other than a Class C misdemeanor?

A No.

Q So can you generally describe when a professional engineer is required to seal a document?

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A Generally, when -- when it would be considered engineering work.

Q What significance does a seal have?

A It means that either a professional engineer has reviewed or prepared that document.

Q So for every document that you've sealed in the 130 Environmental Park application, that signifies that you've either reviewed or prepared that document?

A Yes.

Q Could we say that if your seal is on a document that you have personal knowledge of the contents of the document?

A Yes.

Q Is it ever appropriate to seal a document for which you have no knowledge of the contents?

A Could you repeat the question, please.

Q Is it ever appropriate to seal a document for which you have no knowledge of the contents?

A I can't think of a scenario where it would be.

Q Okay. Your job at Biggs & Mathews -- so you started out as a staff engineer and an engineer in training.

What types of projects were you working on?

A Really, various kinds of projects within civil engineering, except transportation.

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Q Did you work on any solid waste projects?

A I don't recall.

Q Well, how many landfill permit applications have you worked on?

A I guess it would depend on -- on what role you would be talking about.

Q Any role.

A Okay. How -- and the question is how many?

Q Uh-huh.

A I'm not sure.

Q Well, is it a dozen?

A No.

Q Is it five?

A No.

Q Less or more?

A Less.

Q Three?

A I don't know.

Q Well, let's go through the ones you remember. There is 130 Environmental Park, obviously; right?

A Yes.

Q Okay. So before 130 Environmental Park, what other application have you worked on or project?

A I don't -- I don't know the names of the

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projects.
Q Okay.
A I just -- I helped in a few minor ways on some of the other projects. I don't know if they were permits or whether they were construction projects or what, but they were solid waste projects.
Q Okay. Describe -- describe the one that you worked on before 130 Environmental Park.
A It was -- it was just helping Kenneth Welch with some hydrology and hydrologic modeling issues.
Q For?
A I don't know the project. He wasn't specific about the project name.
Q But you know it was a solid waste project?
A Yes.
Q Do you know where it was?
A I don't.
Q Do you know if it was a landfill?
A I believe it was.
Q And that would have -- what -- what year? What time frame was that work?
A I don't recall.
Q Was it two years ago?
A I don't -- I don't remember.
Q Was it ten years ago?

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A I don't think so.
Q Okay. And so you did some modeling for Mr. Welch; is that right?
A Yes.
Q Anything else on that one project? Did you do anything other than modeling?
A No.
Q And any other projects?
A I think there were -- there were probably more than one that -- that I had the similar -- similar assistance.
Q So you would have done modeling work for Mr. Welch or another engineer? Is that what you're saying?
A On other projects.
Q On other projects. Okay.
And do you know how many other projects you did modeling work?
A I don't.
Q Would it have been more than three?
A I don't know.
Q And you're sure that these were for solid waste projects?
A Yes.
Q Did you do any other type of work, other than

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modeling work, on any solid waste projects?
A Not that I recall.
Q Okay. So as far as you can recall, you've only done some modeling on some unspecified solid waste projects for Mr. Welch or some other engineer maybe on a total of three projects?
A I'm not sure that's what was said.
Q Okay. Well, then tell me which parts I got wrong.
A Okay. Well, can you repeat that?
Q Sure.
So you've only done modeling work on any solid waste projects that you've worked on besides the one we're here for today; is that right?
A Can you repeat that one more time? Sorry.
Q Okay. Setting aside the 130 Environmental Park application, you've only done modeling work for Mr. Welch or another engineer on any solid waste projects that you've worked on?
A Other than 1- -- other than the Envir- --
Q Uh-huh.
A Yes.
Q Okay. And you don't know which projects those were? That is, you can't specify which landfill projects you worked on?

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A I don't remember which projects they were, no.
Q And you can't describe them either; is that right?
A No.
Q So you can't say, for instance, whether it was a Type I landfill versus maybe an amendment to a landfill, an expansion of a landfill?
A I don't recall.
Q And you can't tell where they were either, where they were located?
A No.
Q Okay. And -- and you possibly worked on as many as three solid waste projects; is that right?
A I don't recall if it was three or more than three or less than three.
Q Was it more than five?
A I don't think so.
Q Okay. So maybe between three and five?
A (No audible response.)
Q So as far as you can remember, when you did modeling work on a solid waste project, was it typically on behalf of an applicant?
A I'm not sure.
Q Well, did you -- have you ever done any modeling work on a solid waste project for protesting

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parties?
A I'm not sure. I didn't know who the client was.
Q Okay. Are you familiar with any solid waste cases or projects that Biggs & Mathews has been hired to work on where they've worked on behalf of a protesting party?
A I don't know.
Q You don't know?
A (No audible response.)
Q Okay. Have you worked on other types of projects besides solid waste projects since you've been at Biggs & Mathews?
A Yes.
Q Okay. What kinds of projects?
A You know, lots and lots of different types of projects, other than -- other than transportation.
Q Okay. So some examples.
A We've worked on water distribution systems.
Q And what water distribution system? What is that? What are you talking about there?
A That's how a water distribution system is responsible for the water that you get out of your tap or the toilet that you flush.
Q Okay. Yeah. So what -- where was this water

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distribution system that you were working on?
A I've worked on many of them.
Q Okay. How many?
A I couldn't be sure of the number of them, but -- but maybe more than -- more than five, perhaps ten.
Q Do you recall where these were located?
A Some of them, yes.
Q Okay. Can you tell me?
A Sure.
I've worked on the Wichita Falls distribution system, the City of Archer City, Argyle Water Supply Corporation.
Q Who was that?
A Argyle Water Supply Corporation. Robson Ranch development, Bartonville Water Supply Corporation, Bolivar Water Supply Corporation. I think there are some others. Southwest Sandhills. I believe it's a water supply corporation as well.
Q Generally, what is your role when you work on these water distribution system projects?
A It could be anywhere from design to evaluation of the existing system.
Q Have you worked on other types of projects?
A Yes.

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Q What other types?
A I've worked on water pump stations. I've worked on wastewater collection systems, wastewater pump stations, wastewater treatment plants, water treatment plants, subdivision development, various drainage studies, and...
Q So what wastewater treatment plants have you worked on?
A I've worked on the Robson Ranch wastewater treatment plant.
Q Is that a development?
A It is.
Q Where is that?
A It's in Denton County.
Q Was that an application for a permit?
A A permit application was involved, but when I'm describing that work, that wouldn't include that.
Q What did you do?
A I designed the -- the treatment plant expansion.
Q Is that the only wastewater treatment plant that you've worked on?
A No.
Q What are the others?
A The City of Archer City.

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Q Did you work on developing an application for Archer City?
A For the -- the original permit or...
Q Or an expansion. Did you work on an application for the wastewater treatment plant?
A I don't think that -- that plant has ever been expanded.
Q Did you work on an application for the wastewater treatment plant?
A For -- I'm confused. I need more specifics to be able to --
Q Have you worked on any application for a wastewater treatment plant in Archer City that was submitted to TCEQ?
A Application for permit. I've worked on permit renewals.
Q For Archer City?
A Yes.
Q Okay. And was that the -- what else did you do for that wastewater treatment plant?
A I evaluated its effectiveness and made recommendations as to whether it needed to be modified or replaced.
Q Okay. Any other wastewater treatment plants?
A Not that I can recall.

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Q Okay. What about the water treatment plants? How many have you worked on?
A Only two come to mind, but there may have been others.
Q And which two were those?
A The Cypress Water Treatment Plant and the Archer City Water Treatment Plant.
Q What is -- what was your role in those two?
A For the Archer City Water Treatment Plant, I -- I evaluated their existing plant, recommended improvements, and -- and designed construction plans for the replacement of that plant.
Q Was the -- did you have the same role in both projects?
A No.
Q Okay. So the one you just described was for Cypress; is that right?
A That was for the City of Archer City.
Q Okay. And what did you do for Cypress?
A I evaluated construction submittals and shop drawings.
Q So for all of the projects that you've described so far, did you ever have a role in preparing an application that was to be submitted to the TCEQ, other than for a renewal?

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A Yes.
Q Okay. Tell me about those applications.
A It was an application for the Robson Ranch wastewater treatment plant. It was a -- a minor amendment --
Q Okay.
A -- to the permit -- to the discharge permit.
Q What was the minor amendment?
A It was to increase the discharge flow rate.
Q Have you worked on any other applications that were submitted to TCEQ, other than for renewals?
A Not that I recall.
Q You talked about drainage studies.
What kind of drainage studies have you done?
A I've done various drainage studies. I've done master plans. I've done designs for all sorts of storm water systems and site development and commercial and residential development.
Q Have you done a FEMA flood study?
A I have.
Q Okay. How many times?
A I don't recall.
Q More than once?
A Yes.

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Q More than three?
A I don't know.
Q Have you done a FEMA flood study for any project, other than for the 130 Environmental Park application?
A Yes.
Q Okay. Tell me about those.
A Okay. One that I recall was on Loch Lomond creek in Wichita Falls.
Q Who was your client?
A I don't remember the -- the business's name.
Q Well, what was it for? What was the study for?
A I think the gentleman was -- was wanting to develop that piece of property -- a certain piece of property that that creek flowed through.
Q Are there any others that you worked on?
A I -- yes, but I don't recall the names of the projects, and some of them I worked in support of other engineers on those.
Q Well, can you just describe the projects?
A Yeah. They were -- most of the FEMA studies that we do are related to -- to reducing the extent of the floodplain in a certain -- for a certain flooding source.
Q Do you recall how many of these you worked on?

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A I don't.
Q More than five?
A Maybe.
Q More than ten?
A I don't think so.
Q Okay. So for the Wichita Falls one that you described, what was the contributing watershed for that flood study?
A I don't recall.
Q Do you recall the contributing watershed for any of the projects that you worked on where you were looking at the FEMA floodplain?
A Recall -- recall what about the watershed?
Q The contributing watershed. I mean, do you recall the nature of any of the other projects, besides Wichita Falls?
A The -- the nature of them?
Q What I have is that you've worked on between five and ten flood studies, and the objective was to reduce the extent of the floodplain for the source. And I'm trying to get more details about maybe one other project you worked on or two other projects.
A Okay.
Q So can -- do you have -- can you pick one and maybe walk me through what you did?

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A **Sure.**
Q Other than Wichita Falls, what's another project where you did a FEMA flood study?
A **A FEMA flood study? We did one for Robson Ranch. I don't recall being -- I don't think I was the prime engineer on that, but I assisted in that one.**
Q Were you a prime engineer for any of the flood studies that you worked on?
A **The FEMA flood studies?**
Q Yes.
A **Yes.**
Q Okay. Which one?
A **I know I was for the one in Wichita Falls, and there may have been others.**
Q But you can't recall which others you might have been the prime engineer for; is that right?
A **No.**
Q Well, then let's stick with Wichita Falls.
Do you know what size of the watershed --
A **I don't remember how -- how large it was in acres.**
Q Do you remember whether it was in a FEMA zone A or AE?
A **I don't recall.**

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Q Do you recall whether there were online reservoirs or ponds?
A **I don't think there were, no.**
Q Okay. So in this case, who -- who's your client?
A **My client is Biggs & Mathews Environmental.**
Q Is Biggs & Mathews not your employer?
A **Biggs & Mathews is my employer.**
Q Okay. So who are you doing work on behalf of?
A **Biggs & Mathews Environmental.**
Q And who is Biggs & Mathews doing work on behalf of?
A **I believe it's HHNT.**
Q And who is HHNT or what is that?
A **That is a -- I believe they're an engineering firm.**
Q Do you interact or communicate with anyone from HHNT?
A **Currently?**
Q Throughout the work on the project.
A **Yes.**
Q Who?
A **Bill Hodges.**
Q So is he your client contact?
A **No, I don't think so.**

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Q Okay. Who is your client contact?
A **It would be Kenneth Welch or Mike Snyder.**
Q Is Mr. Snyder the project -- the project manager for this application?
A **I'm not sure.**
Q Is -- do you know if Mr. Welch is the project manager?
A **I don't.**
Q So what's Mr. Welch's role with regard to the -- this application?
A **I'm not sure.**
Q Well, when you communicate with him, what do you communicate with him about?
A **I communicate with him about what I need to prepare for the application.**
Q Okay. So is he supervising your work?
A **I don't know that I would use that term.**
Q Okay. So then why is it that you communicate with him about what you need to prepare for the application?
A **As opposed to...**
Q As opposed to not consulting with anyone.
A **Oh. Well, he's my client.**
Q Mr. Welch is your client?
A **Yeah.**

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Q So your understanding is that you're doing work for Mr. Welch; is that right?
A **I'm doing work for Biggs & Mathews Environmental, yeah. And he's a -- I believe he's a partner in Biggs & Mathews Environmental.**
Q Okay. Is there anyone else at HHNT that you communicate with besides Bill Hodges?
A **I believe I communicated with Clint Courson.**
Q Who is Clint Courson?
A **I'm not -- I mean, I think he works for HHNT.**
Q So what's the nature of your communications with Bill Hodges?
A **Mainly status reports.**
Q Why do you provide status reports to Bill Hodges?
A **Because he is the client of Biggs & Mathews Environmental.**
Q Okay. So it's your understanding that -- that Bill Hodges -- that you have to report to Bill Hodges periodically?
A **No.**
Q Okay. So you just provide him status reports just because?
A **No. He normally contacts me.**
Q Okay. When did you first start working on this

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application?
A I believe sometime in 2014.
Q So you weren't -- well, did you prepare the original drainage analysis and floodplain analysis?
A I'm not sure about what document you're referring to.
(Whereupon Dennis Hobbs joins the proceedings.)
Q (BY MS. PERALES) Well, let's go -- let's go -- so let's say you were hired in 2014. What was your understanding of what you were hired to do?
A I prepared Attachment C of the application.
Q And what does Attachment C generally address?
A Drainage.
Q So you prepared the parts of the application that dealt with drainage for the landfill; is that right?
A Yes.
Q And you think that you started working on that in 2014; is that right?
A That's what I recall, I think, yeah.
Q Okay. Was anybody else working on Attachment C before you?
A I don't know.
Q Okay. So it's not like you took over for

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anybody else?
A No.
Q You did all of the work from beginning to end for Attachment C?
A That's my understanding, yes.
Q So -- and who hired you to do that?
A Biggs & Mathews Environmental.
Q Was it Mr. Welch? Who contacted you?
A I believe it was.
Q What -- what was the scope of your work or your employment on this proposed landfill project? Was it only to prepare Attachment C?
A Well, I ended up also preparing a preliminary plat or a portion of a preliminary plat.
Q Did you work with someone on that from Biggs & Mathews?
A Can you be more specific about the capacity or...
Q Sure.
You said you worked on a portion of the preliminary plat, so I wonder who else worked on that.
A Oh. John Hodde.
Q And John Hodde, is he with Biggs & Mathews?
A No.
Q Who is he with?

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A I believe his company's name is Hodde & Hodde.
Q What -- what's his -- in what capacity did he work on the preliminary plat?
A He is a -- a surveyor, and he actually produced the plat document.
Q Okay. So you were responsible for Attachment C for the permit application and a portion of the preliminary plat.
Is there anything else that you were responsible for with regard to the proposed landfill in Caldwell County?
A Not that I can think of.
Q Do you anticipate that you will be doing any additional work with regard to seeking approvals from Caldwell County?
A I'm not sure.
Q Have you been asked to prepare any materials or to review any relevant Caldwell County ordinances that might apply?
A Yes.
Q Is it your understanding that you may have to seek authorizations from Caldwell County in the future?
A I'm not sure.
Q Do you know whether you'll be submitting any other information to Caldwell County?

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A I don't know.
Q Are you responsible for any analysis or work related to the access road to the proposed landfill?
A Can you repeat the question, please.
Q Were you responsible for any analysis or design or review of the access road to the proposed landfill?
A I prepared the culvert sizes for the road.
Q Do you know if you'll be needing to seek any authorizations for the construction of the access road?
A I'm not sure.
Q Is that not your role?
A What?
Q Well, doesn't somebody have to be in charge of determining what authorizations are necessary for constructing the access road?
A I suppose someone is responsible for that.
Q But it's not you?
A Not that I know of.
Q Were you involved at all with the site selection process for this landfill?
A No.
Q So you talked about your role in preparing the preliminary plat.
Tell me about what -- what it was that triggered the requirement to submit a preliminary plat.

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A **I don't recall.**
Q Well, did somebody just ask you to prepare a preliminary plat?
A **I don't remember.**
Q Did you review any Caldwell County regulations or ordinances that led you to believe that you needed to submit a preliminary plat?
A **I reviewed the ordinances, but I don't think that I reviewed them to determine if it was required to submit the plat or not.**
Q So why did you submit one?
A **I believe someone requested that I submit one.**
Q Who was that?
A **I don't recall.**
Q Someone at Biggs & Mathews?
A **Maybe.**
Q Did you -- when you were asked to submit one, did you then go back and check to see if one was required by the county ordinances?
A **No.**
Q So you just did what you were asked to do by your client?
A **I'm not sure that the client asked me to do that.**
Q Well, how else would you have determined that

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you needed to submit a preliminary plat?
A **It may have been someone internal that told me that we need to submit a preliminary plat, but I can't remember who or when or...**
Q Internal. You mean at Biggs & Mathews?
A **Yes.**
Q So you submitted a preliminary plat either because your client or someone from Biggs & Mathews told you to?
A **Yes.**
Q Okay. So when you were hired to work on the Attachment C in the application for this proposed landfill, was it also your understanding that you may have to provide testimony in this case?
A **Yes.**
Q Have you ever had to provide testimony before?
A **No.**
Q So how were you made aware that it was possible that you would have to provide testimony in this project?
A **I don't recall.**
Q Do you recall when you first learned that you might have to provide testimony for this project?
A **No.**
Q So have you been asked by counsel or Mr. Welch

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or Mr. Snyder to produce certain documents related to this case?
A **Yes. Yes.**
Q What were you asked to provide?
A **All the documents that we -- that would support the -- the section of the application that I worked on.**
Q When was this request made to you?
A **I don't remember.**
Q Was it a month ago?
A **I don't know.**
Q Was it last week?
A **I don't think it was last week.**
Q Was it over the summer?
A **Maybe.**
Q Were you asked to provide all materials, models, data compilations, e-mails that were provided to you, reviewed by you, or prepared by or for you?
A **Can you repeat that? That's a lot of stuff.**
Q Sure.
So were you asked to provide all models, reports, data compilations, materials, e-mails, and documents?
A **I think so. You're asking a lot of stuff.**
Q Okay. So you -- there was nothing that you -- well, let me ask this way: Was there anything in your

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possession related to this application that you understood you did not have to provide?
A **Yes.**
Q Okay. Well, what was that?
A **So, like, the TxDOT manual, for example.**
Q Uh-huh. So, like, publicly available documents?
A **I believe that's publicly available.**
THE VIDEOGRAPHER: It wasn't me.
MS. PERALES: That's weird. I guess -- can we -- can you keep going?
THE VIDEOGRAPHER: I died, so, I mean...
MS. PERALES: You died?
THE VIDEOGRAPHER: Can we take a quick break and let me --
MS. PERALES: Yeah. Let's do that.
(Recess taken from 10:31 a.m. to 10:43 a.m.)
THE VIDEOGRAPHER: It is 10:43 and we are back on the record.
Q. (BY MS. PERALES) So, Mr. Traw, we were talking about the types of documents that you understood you did not have to provide to us through discovery, and you had mentioned, as an example, a TxDOT manual.
Are there any other documents that you

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understood you did not have to provide to us, even though you might have relied on them?
A Yes.
Q Okay. What other documents or information?
A The Texas Administrative Code.
Q Okay. And that would be, like, TCEQ rules --
A Yes.
Q -- is that right?
Anything else that you can think of?
A Just technical publications, like TR-55.
Q So generally, was it your understanding that you did not have to provide information that was publicly available?
A Publicly available and referenced in the application.
Q Okay. So is that the only, let's say, set of information that you did not provide to us that you might have used in preparing the application materials?
A I believe so.
Q So Exhibit 2. How did you determine that this was something that needed to be produced to us?
A I didn't.
Q Oh. Who -- who did?
A Brent did.
Q Okay. And why is that?

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A I'm not sure.
Q Okay. Is this an example of a publicly available piece of information that was referenced in the application?
A It might be, but I couldn't find reference.
Q Okay. So maybe that's why it was produced to us?
A Perhaps.
Q Okay. Did you have a conversation with Mr. Ryan about this document or any other documents that should be provided today during your deposition?
A Yes.
Q Okay. What other documents did you discuss or talk about providing today during your deposition?
A Oh, I think this was the only one.
Q Okay. That's the only -- so he mentioned to you this might be a good idea to bring this to the deposition. Is that how the conversation went pretty much?
A No.
Q Well, then how was it determined that this document should be brought to this deposition?
A I'm not sure how he made that determination.
Q Well, how did he convey it to you, that this should be brought to your deposition?

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A Can you ask that again?
Q How did he let you know or inform you that this was a document that should be produced during your deposition?
A I don't know that he was that certain about it. I think he -- we can just take it and -- just in case.
Q Okay. So did he ask you to review it and then confirm that it was something that you had relied on?
A No.
Q It was just provided to you and determined that you should bring it?
A Well, I didn't bring this.
Q Okay. So you had no role in the decision to bring this document to the deposition.
Is that fair?
A Yes.
Q Okay. So how did you use this document in your work on the application?
A I used it to -- I used it in -- in the modeling portion. I used this to estimate the stage discharge relationship of the site 21 reservoir.
Q Okay. So when you were asked to provide all of the information that you relied on for your application -- for the landfill application, how did you go about complying with that request?

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A I copied our digital file folder and -- and sent that, and then I took the -- our hard copy folder and made copies of -- I can't remember if I scanned it or made copies and sent that to Biggs & Mathews Environmental.
Q What does the digital file folder include?
A All of the -- all of the computer files for my portion of the project.
Q Would it include correspondence with anyone about the proposed landfill?
A I think that would be in a separate part. That would probably be -- I think we did our e-mails separately.
Q Did you produce your e-mails?
A Yes.
Q Okay. And then what's in the hard copy folder?
A Just -- generally, perhaps, you know, invoices or technical reports like this, any -- anything that we kept that pertained to the project that was a hard copy.
Q Okay. What about information or data that you either prepared or reviewed related to the preliminary plat that was submitted to the County?
A Yes, I believe that was included.
Q What about communications between you and Tracy Bratton or anyone working on behalf of

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Caldwell County?
A I don't recall.
Q You don't recall whether you had any written communications or whether you produced them?
A I don't recall if they were produced or not.
Q Okay. Would that have been something that you would have kept a file folder for?
A I think we treated it as the same -- the -- the project folder was the same for the plat, I think. I'm not a hundred percent certain about that.
Q So if you produced -- so it's your understanding that you produced information related to the preliminary plat; is that right?
A I think so.
Q But you're just not sure whether -- you don't know?
A I don't really recall.
Q Okay. Was it your understanding that that is something that you needed to produce?
A I'm not sure.
Q Is it related to the landfill application?
A No.
Q Do you need to -- did you need to get a preliminary plat approval in order to construct a landfill?

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A I'm not sure.
Q So how do you know that it's not related to the landfill application?
A Because I think any of the work that I did on the preliminary plat wasn't included in the application itself.
Q Were you looking at similar types of designs or analyses for the preliminary plat as you were for the application?
A They were similar in the type of -- of work that they involve, yes.
Q So for instance, if you did a floodplain analysis for the application that you submitted to TCEQ, did you also do a floodplain analysis for Caldwell County?
A Yes.
Q But it wasn't related to the application?
A Right.
Q It wasn't related to the landfill?
A It was separate and apart.
Q But not related to the landfill?
A The -- what are we talking about again? The...
Q The floodplain analysis that you submitted to Caldwell County, are you saying that it was not related to the proposed landfill?

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A Well, I guess it was related because it involved the same piece of property.
Q And the same project; right?
A No. None of the work that I did for the preliminary plat was included in the application.
Q But the floodplain analysis you did for the County, it involved a proposed landfill, didn't it?
A I don't -- I don't think that was involved in the modeling, but I'm not -- I'm not sure.
Q So you submitted a preliminary plat and floodplain analysis with no specificity about the project that it was going to be on the property?
A I don't recall.
Q What about information or communications between you and -- or Biggs & Mathews and Plum Creek Conservation District? Do you recall whether you had any written correspondence with Plum Creek Conservation District?
A I don't think I did.
Q Do you recall receiving any information from Plum Creek Conservation District?
A Yes.
Q Did you produce that?
A I'm not sure.
Q Would it -- in your mind, is it relevant to the

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landfill permit that your -- that 130 Environmental Park is seeking?
A I think it would probably depend on what -- what that information was. It may or may not be.
Q So there could be information that Plum Creek Conservation District might have shared with you, but would have no relevance to the proposed landfill?
A I think that's probably true.
Q Okay. Are you familiar with the Biggs & Mathews document retention policy?
A Not very familiar, no.
Q So has a written document retention policy ever been provided to you?
A Yes.
Q Do you generally recall what the document retention policy is?
A No.
Q How do you comply with it?
A I'm not sure that I do.
Q Okay. Were you ever asked to -- were you ever specifically asked to retain and refrain from discarding any of the data or information you had collected related to this proposed landfill project?
A Not that I can remember.
Q Do you recall discarding any information

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related to this proposed landfill project?
A **Not that relates to the application.**
Q Well -- but my question is related to the landfill, the proposed landfill.
Do you recall discarding any information that relates to the proposed landfill?
A **Yes.**
Q What type of information would you have discarded?
A **Old -- any items that -- that were revised and weren't made part of the application --**
Q So --
A **-- or in direct support of the application.**
Q So can you give me some examples?
A **Yeah. If I were to do some modeling, for example, and it turned out that that model wasn't used to -- wasn't used in the application, then I would remove that from our files.**
Q So what kind of modeling would you have done that was not used in the application?
A **Oh, well, sometimes you -- you -- it could have been the design of a certain type of pond or a different type of configuration that ended up not being in the final product.**
Q And it was -- and so that kind of information

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you discarded?
A **Yeah. Anything that wasn't in support or included in the application -- in the final application.**
Q So any drafts, for instance, or -- original drafts or, as you described, modeling exercises or calculations that did not end up supporting what you included in the application, you would have discarded that?
A **In the final application. Right.**
Q If it didn't support what was in the final application, you discarded it?
A **Yes.**
Q Did you ever communicate with any area residents near the proposed landfill?
A **No.**
Q Any local elected officials?
A **No.**
Q Did you speak to anyone locally about existing conditions at the site?
A **I don't recall.**
Q Did you speak to the property owner?
A **No.**
Q Did you speak with any representatives from Plum Creek Conservation District?
A **Not that I recall.**

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Q Anyone from Caldwell County?
A **I guess I spoke with Kasi Miles regarding the preliminary plat.**
Q Did you also communicate with Tracy Bratton or anyone at his firm?
A **Yes.**
Q Was it your understanding that he is a consultant for Caldwell County?
A **That's my understanding.**
Q Did you assist in preparing any responses to interrogatories?
A **Interrogatories?**
Q Yes. Do you know what interrogatories are?
A **I'm not sure what you're referencing as an interrogatory, no.**
Q Do you recall seeing any written questions that were submitted to 130 Environmental Park from one of the protesting parties?
A **No.**
MS. PERALES: Can I get this marked.
(Exhibit 3 marked.)
Q. (BY MS. PERALES) Have you seen this document before labeled Exhibit 3?
A **I don't believe so.**
Q Can you turn to page -- let's see -- page 11 of

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the document.
MR. RYAN: Marisa, do you have another copy of that?
MR. HOBBS: Here.
MR. RYAN: Oh, thanks.
Q. (BY MS. PERALES) Can you take a look at question No. 8.
A **Yes.**
Q Do you recall seeing that question before?
A **Is -- I don't -- I don't know which one of these is a question, I guess.**
Q It's -- it's the first word that follows the number 8. It starts, "Please explain..."
A **"Please explain..." Okay.**
Okay. I've read this.
Q Do you recall being asked that question before?
A **No.**
Q Can you take a look at the information that's underneath the word "Response" on that same page?
A **You're going to have to help me a little more than that. I don't know where you're talking about.**
Q So you see the word "Response" towards the bottom of the page?
A **Oh, this response.**
Q Uh-huh.

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A Okay.
Q Can you take a minute to read what's underneath that word?
A Yes.
Q Do you recall helping prepare that response?
A I don't.
Q Did you provide any of the information that's included in that response?
A I'm not sure.
Q Is any of this language -- as far as you can recall, does any of this language come from you?
A I don't believe so.
Q Okay. Can you turn to page 12. Look at question 9, which is at the top of the page. I call it a question, but it's actually a statement.
Do you recall seeing that question before?
A No.
Q Do you recall having assisted in preparing a response to that question or that request?
A No.
Q Midway through the page, there is another request for information identified as No. 10. It begins with "Please identify and describe all ponds..."
Do you see that?
A Yes.

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Q Do you recall having seen that request before?
A No.
Q Do you recall being asked to help in drafting a response to that request?
A No.
Q Can you turn to page 13.
Do you see the number 11 just below the first paragraph?
A Yes.
Q Can you take a second to read that request for information.
A (Witness reviews document.)
Q Do you recall seeing this request before?
A No.
Q Do you recall assisting in preparing any response to this request?
A No.
Q So how many times would you say you have visited the site of the proposed landfill?
A Maybe five.
Q Do you recall when you visited the site? When was the first time?
A I don't -- I don't remember when. It was before I started any work on -- on the application.
Q So maybe early 2014?

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A Maybe.
Q And what was the purpose for each of your site visits?
A I think the first site visit was just to get a -- an idea of what the property looked like, an idea of where the property's located, the type of features that are on the -- the property, just generally observe what the property is.
Q Were you able to get a look at the entire site during that first visit?
A I'm sure there are some -- some portions of the site that I did not observe.
Q But was it -- did you see most of it, would you say?
A I would say so, yes.
Q Do you know what time of year it was?
A I recall that there were leaves on the trees, so I would guess that it was, you know, not during the winter.
Q Okay. So do you recall what other times of the year you might have visited the site?
A I don't.
Q If you had gone back -- so you went back the first -- you went the first time. Your first site visit was to get a general observation of the features of the

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site, and we know that you accompanied the protesting parties on a site visit.
A Correct.
Q So if there were two or three additional site visits, what would the purpose of those site visits have been?
A I don't remember. I don't think there was a specific purpose for some of them. One time I visited the site with Russell Morsoc (phonetic) --
Q Uh-huh.
A -- and with the Corps of Engineers.
Q Have you visited the site after any significant storm events?
A Yes.
Q When was that?
A Well, the time that I went out on the site with you was after a storm event.
Q Okay. Wasn't that site visit in August?
A I don't remember.
Q Okay. Did you visit the site after the Memorial Day flood?
A Yes.
Q Was it the site visit that you accompanied -- accompanied us on?
A I don't recall.

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Q Okay. Did you visit it after the October 30th rains?
A Not October 30th.
Q Of this year.
A Of this year? The last time I visited the site was the -- the time when -- when you were on site.
Q Okay. So what do you recall, if anything, about the site after the Memorial Day floods?
A Probably what sticks out in my mind the most was the inadequacy of the culvert along Homannville Trail and -- and the -- the main creek there.
Q Dry Creek? Is that...
A Yes, I think it's Dry Creek.
Q Do you recall anything else that was different after the Memorial Day flood?
A Not that I recall.
Q Did you visit the site during the summer or during the height of the drought?
A I'm not sure what the height of the drought was for this site.
Q Okay. Did you visit it, let's say, in the summer of -- let's say 2013?
A I don't think so. I think my first site visit was in 2014.

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Q Did you visit it during the summer of 2014?
A Maybe.
Q Did you take any notes while you were visit -- visiting the site?
A No.
Q Did you take any photographs?
A I don't recall.
Q Did you take any video?
A I don't think so.
Q If you had taken photographs, would those have been produced? Would those have been included in the file that was produced to us?
A I think there were some photographs in the file, but I don't think I took them.
Q Okay. And you don't know if you took any?
A Not that I remember, no.
Q If you had, would they have been in the file?
A Yeah.
Q Okay. So that first site visit, you didn't take any notes. You don't think you took any photos. You didn't take any video.
So there is no -- there is no documentation of the observations you made during that first site visit?
A I'm not sure.

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Q Well, by you? Was there any documentation by you of that first site visit?
A Like -- like, notes or -- I didn't take any notes, and I don't think that I took any pictures.
Q So there is nothing recording your observations from that first site visit?
A Well, other people that were with me I believe took pictures during that visit.
Q So who else was with you?
A I think Kenneth Welch, Kerry Maroney, and Kerry J. Maroney. I think they were there.
Q Those are two different people?
A Those are two different people.
Q Are they both engineers?
A They are.
Q Are they both working on this project?
A I don't believe so.
Q Okay. So would one of the Maroneys or Mr. Welch have taken photos or notes?
A I couldn't say --
Q Okay.
A -- whether they did or didn't.
Q But you didn't rely on them or review them if they did?
A I did review some pictures from the site.

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Q Okay.
A I'm not sure if they were taken that visit or previous visits.
Q Do you recall -- what do you recall about the existing vegetation on the site when you visited the site?
A That it was -- it was variable throughout the site.
Q Can you be more specific?
A Yes.
Q Go ahead.
A It had -- there were areas of dense stands of mesquite. Generally, the property was -- was pastureland, but it had significant forest in some areas. Near the dam -- the site 21 dam had very thick stands of Bermuda grass that were extensive.
Q Is that it? Is that all you remember about the vegetation?
A Oh. There were a lot of prickly pear. I certainly remember that.
Q What do you recall about the soils, if anything?
A I didn't evaluate the soils --
Q Did you --
A -- at the site.

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Q Did you observe any indications of erosion?
A **Not that I recall.**
Q Do you recall observing significant areas with gravel?
A **No.**
Q Did you make any observations about the topography?
A **Only generally what's -- what you can view from out there. So I guess to that extent, yes.**
Q So based on -- so -- well, let me back up here. Did you then -- did you review publicly available documents or aerial photographs to get an idea about the existing conditions before you started your work?
A **I probably used Google Earth or Google images.**
Q Did you review any other publicly available documents?
A **Probably.**
Q Such as?
A **I don't recall.**
Q Okay. So can you give us a general description about the existing conditions at the site as they pertain to drainage, storm water?
A **Just that it was -- you know, it was generally pastureland, and it had significant forests in -- in**

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certain areas. It was fairly diverse in coverage of vegetation. Generally, the creek bottoms were -- were heavily vegetated with undergrowth.
Q What about the reservoir? Did you make any observations about the reservoir that you can recall?
A **Yes.**
Q Okay. Tell me about your observations of the reservoir.
A **I believe we -- we parked on the east side of the reservoir and walked out on the dam and looked out over the reservoir and observed the -- the principal spillway and its outlet.**
Q Do you -- do you have an opinion as to whether having the reservoir right next to the landfill is something that is beneficial or detrimental to the project?
A **I don't guess I do.**
Q Did you do anything else after your observation of the reservoir to familiarize yourself with the dam?
A **Yes.**
Q What else did you do?
A **I certainly viewed the different maps that we had available, both aerial photo and topographic maps. I reviewed the -- the as-builts of the dam from the NRCS. I reviewed a -- a study on the -- on the dam**

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by -- I don't recall who it was by. I think I also reviewed a dam inspection report. I believe that may have been by the TCEQ, but I'm not certain.
Q Were all of those -- was all of that information produced to us?
A **I'm not sure.**
Q Was it in the files that you turned over?
A **I think so.**
Q Did you make any inquiries of -- from Plum Creek Conservation District about the dam or the reservoir?
A **I did not.**
Q What did you determine from the dam inspection report?
A **I don't think I determined anything.**
Q Would you agree that the presence of the dam near the site is a unique landfill site characteristic?
A **I wouldn't know.**
Q Do you know of other landfills that are adjacent to a dam?
A **Not that I'm aware of.**
Q What can you tell us generally about the proposed landfill and its relation to floodplains in the area?
A **I think all of the -- the landfill's footprint**

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is outside of the floodplain.
Q You think? Was that one of the issues that you were asked to analyze?
A **No.**
Q So you can't say for sure whether the entire footprint is outside of the floodplain?
A **It wasn't my responsibility to determine the location of the footprint.**
Q Okay. So what was your responsibility in relation to the floodplain analysis?
A **I determined where the floodplain -- I used modeling to determine where the floodplain was in conjunction with the available maps from FEMA.**
Q Is it fair to say that the proposed landfill is pretty close and pretty much abuts the floodplain in several areas?
A **I'm not sure.**
Q Okay. So that's not something you looked up, the proximity of the proposed landfill to the floodplain?
A **I wasn't responsible for determining the footprint, no.**
Q So are you familiar with the proposed site access road?
A **Somewhat familiar.**

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Q Do you know where it would be located?
A I think, generally, it's on the -- the -- the western part of the landfill.
Q Do you know whether it has to -- whether it is -- if it were constructed, whether it would be constructed over any floodplains?
A I think it would -- it may cross floodplains.
Q Do you have an opinion about a site access road to a landfill that has to cross floodplains? Is that beneficial? Detrimental?
A I think it's pretty typical.
Q For a site access road to a landfill to cross floodplains?
A For roads to cross floodplains.
Q So -- so is it fair to say that the presence of floodplains did not factor into where the site access road would be located?
A I'm not sure about that.
Q What about the shape of the proposed landfill? Did that seem -- did you -- do you have any knowledge about the shape of the proposed landfill?
A I generally am aware of the shape of it.
Q In your experience, is that an unusual shape?
A No.
Q Have you ever seen or designed one like this

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before?
A No.
Q Do you know how landfills are typically shaped?
A No. I'm not sure there is a typical shape.
Q How many have you seen?
A Landfills?
Q Yes.
A Oh, man. I don't know. I guess I've seen a lot of landfills.
Q Well, how many is a lot?
A Fifteen or 20.
Q Do you have any recollection about what the boundaries look like?
A No.
Q So looking through my notes, I have written down that you were responsible for -- I guess it was Attachment C of the landfill permit application; is that right?
A Yes. In Part 3.
Q Did you have a role in any other parts of the application materials?
A I don't recall.
Q Did you -- did you seal any of -- do you recall whether you sealed any of the documents outside of Attachment C in the application materials?

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A I don't believe I did.
Q Did you seal any of the documents included in Attachment C?
A Yes.
Q And what does your seal signify specifically?
A It signifies that -- that I either prepared that document or it was prepared under my direct supervision.
Q Were portions of the document prepared under your direct supervision?
A Yes.
Q So who was it that you were supervising?
A There were two individuals. One of them is Nash Gann. He's a draftsman, so he helped prepare some of the maps. I don't recall the other guy's name.
Q Okay. So Attachment C, do you recall generally what that includes?
A That includes the -- the drainage analysis of the landfill.
Q So that would be a comparison of pre- and post-development conditions; is that right?
A It would be the demonstration that the drainage system complies with the TAC, the Texas Administrative Code, or TCEQ rules.
Q So I'm trying to break that down a little bit

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further.
So within that analysis, you would be analyzing or comparing pre- and post-development conditions; is that right?
A Yes.
Q To determine whether there is a significant impact on drainage patterns?
A Determine if there is any adverse modification to drainage patterns.
Q Okay. Did you also look at the final cover drainage facilities?
A I did.
Q Okay. Perimeter drainage channels?
A Yes.
Q Detention and sedimentation ponds?
A Yes.
Q Erosion and sediment control plan?
A Yes.
Q And you already said that you also analyzed the floodplain analysis -- or did the floodplain analysis; is that right?
A Yes.
Q So how many other -- how many other final cover drainage facility designs or analyses have you done before this one?

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A **I think this is the only one.**
Q Okay. How many perimeter drainage channels have you designed or analyzed before this one?
A **Perimeter drainage channels?**
Q Yes.
A **As it relates to the -- could you -- could you rephrase?**
Q Yeah. To a facility of this type.
A **Oh, okay. I think this is the only one.**
Q How many detention and sedimentation ponds have you analyzed or helped design?
A **Oh, probably 15.**
Q Are those typically for -- for developments, for subdivisions, and...
A **Not always.**
Q What -- what else would you have designed them for?
A **To detain storm water.**
Q For a particular commercial project or a residential project or...
A **They're for -- for landfills, for residential developments, for commercial developments.**
Q Okay.
A **For storm water mitigation in urban environments.**

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Q So you've done detention and sedimentation pond designs for landfills other than this one?
A **No.**
Q So this is the only one?
A **For landfills.**
Q Okay. Have you done an erosion and sediment control plan for any other projects?
A **Can you repeat the question?**
Q Have you done an erosion and sediment control plan for any other projects?
A **Yes.**
Q What kinds of projects?
A **All sorts of construction projects.**
Q All sorts of construction. Are you talking about...
A **Erosion control plans.**
Q Right, but what types of construction projects?
A **They've been from landfills to pipelines to transportation projects to...**
Q So you've done an erosion --
A **Many different construction projects.**
Q So you've done an erosion and sediment control plan for other landfills?
A **No.**
Q This is the only one?

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A **This is the only one.**
Q Okay. And you've already described to us -- or as best you could remember, some of the FEMA flood analyses --
A **Uh-huh.**
Q -- that you've done in the past.
Have you ever done a floodplain model where there were online reservoirs or ponds involved?
A **Can you repeat the question?**
Q Have you ever done a floodplain model where there were online reservoirs or ponds involved?
A **Yes.**
Q Okay. Can you tell me about those?
A **Yeah. I've done dam breach analyses and flood routing for several reservoirs.**
Q Which reservoirs?
A **Lake Arrowhead, Lake Kickapoo, the secondary reservoir, Jasper Water Treatment Plant sedimentation basin, Lake Buffalo, Lake Isle Park, Lake Gordon. There might be others.**
Q So you did flood studies or flood analyses for all of these and they all involved reservoirs or ponds?
A **Yes.**
Q Okay. So when you were tasked with putting together Attachment C for the application, what was your

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understanding of the objective of your work?
A **To -- to design a -- well, there is different parts of different -- there are different parts of Attachment C that would have a different objective.**
Q Okay. Let's go through those.
A **Okay. Do you have the application? That might help.**
Q Well, I don't have it, so maybe this is a good time for a break.
THE VIDEOGRAPHER: It is 11:33 and we are off the record.
(Lunch recess taken from 11:33 a.m. to 1:00 p.m.)
THE VIDEOGRAPHER: It is 1 o'clock and we are back on the record.
Q. (BY MS. PERALES) So, Mr. Traw, just so we can get some context for the next few questions, can you talk about again what your role as an engineer was with regard to Attachment C? What were your objectives?
A **Well, I guess my -- my objectives was -- were to prepare the Attachment C as part of the -- the application for the landfill and -- and meet the -- the TCEQ rules and requirements for that.**
Q Okay. So let's -- let's take that and apply it to your floodplain analysis.

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So when you did your floodplain analysis, how were you applying the TCEQ rules to make sure that you complied with them?

A I'm not sure I understand that question.

Q So I think I understood you to say that your objective as an engineer was to prepare Attachment C for the application and make sure it complies with the TCEQ rules; right?

A Yes.

Q Okay. So when you conducted your floodplain analysis, what were you doing to ensure you were complying with TCEQ rules?

A Well, I'm not -- I'm not entirely sure that -- that that part was required of the rules, but I think it was a -- a comment from the TCEQ, I think. I can't quite remember why or when we included that, but I think that might have been added later.

Q Okay. Do you know if there are any TCEQ rules that in any way address the siting of a landfill in a floodplain?

A I think there are some. I can't recall what the rules are verbatim.

Q Okay. Do you generally -- do you recall generally what the rules might say about siting a landfill in a floodplain?

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A Not with any specificity.

Q Right. I asked generally.

A Okay. I think there are rules. And, you know, I really -- I would probably go and look -- look that up to refresh my memory.

Q Okay. So with regard to drainage, can you remind me what it is -- what your objective is in analyzing pre- and post-development drainage conditions?

A One more time. I'm sorry.

Q What is your objective when you're putting together and analyzing -- when you're putting together the application materials and analyzing the drainage patterns pre- and post-development, what is your objective?

A Well, the -- the application is meant to -- to try to explain the -- the drainage system and how it complies with the rules.

Q The drainage system -- does -- are you talking about the drainage system for the proposed landfill?

A Yes.

Q Okay. So when you say it's intended to explain how it complies with the TCEQ rules, can you generally explain to me what is required by the TCEQ rules?

A That there is -- there is no significant modification of -- again, I'd probably go back and read

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them. I think it's -- it's no adverse alteration of drainage patterns, I think is what it says.

Q So drainage patterns, what does that encompass?

A You know, that's -- I'm not sure.

Q Well, what did you look at?

A What did I look at? We looked at peak discharge, runoff volume, and velocity.

Q Okay. And so looking at those factors, that's how you conducted your analysis to determine whether there were significant adverse modifications to the drainage?

A Those are the -- the aspects that we include in the application.

Q Okay. So -- so is -- generally speaking, is your understanding that your task is to prepare an application that complies with TCEQ rules so that the application for the permit will be approved?

A I don't think that's entirely what I was tasked with.

Q Okay. Explain to me what about my question was wrong.

A Well, I don't know --

Q Or maybe not complete. What else will you test with?

A Well, I think -- I think the client made some

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requests for us to go above and beyond the rules in a few places.

Q Okay. So then TCEQ rules kind of set the -- the bare minimum requirements that you were tasked with addressing; is that right?

A I don't know that I would use that wording to describe it, but they -- we generally did analysis beyond what was required by the rules.

Q Okay. So can you give me an example of an aspect of Attachment C where you went beyond what was required by TCEQ rules?

A Yes.

Q Okay. Please do.

A We -- we analyzed the -- we evaluated the drainage system for -- for storms such as the 100-year storm event.

Q Okay. And what do the TCEQ rules require?

A I believe they require the 25-year event.

Q So just to make sure I understand, are you telling me that you -- that the storm water management plan or the detention ponds -- or retention ponds are you analyzed that system based on the 100-year storm event instead of the 25-year storm event?

A That was a lot of stuff. Can you repeat that?

Q Well, I'm trying to understand.

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When you used a 100-year storm event rather than a 25-year storm event, what part of your analysis specifically was that addressing?

A Well, we looked at both the 25- and the 100-year.

Q For?

A For the drainage system.

Q That you designed for the landfill?

A Yes.

Q Okay. And what did you ultimately use for the design? Which storm event?

A Both.

Q Okay.

A Both.

Q So if we looked at the storm water management plan, it is designed for a 100-year storm event?

A Not necessarily only the 100, but we use both the 25 and the 100.

Q Okay. Is it also your understanding that one of your objectives in putting together Attachment C is to ensure the protection of human health and the environment?

A Yes.

Q And how is it that you ensure that you're accomplishing that objective?

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A Can you be specific about -- in regard to what? I mean...

Q Well, that's what I'm asking you is to be specific. How specifically were you ensuring that what -- Attachment C is accomplishing the objective of protecting human health and the environment?

A Well, we don't significantly increase the discharge downstream of the landfill.

Q Okay.

A I think that's one way.

Q Would siting a landfill in a floodplain -- could that potentially impact human health or the environment?

A Not necessarily.

Q Okay. So that's -- that's why that wasn't something you considered.

Is that fair?

A I'm not sure what your question is.

Q Well, I think you testified earlier that you weren't sure whether the landfill was in a floodplain. And so my follow-up question is, even if it were, that's not necessarily going to be detrimental to human health or the environment; is that right?

A That seems like a two-part question. First, I don't recall exactly what I said, but I think that I said I wasn't responsible for siting of the footprint. And then the second, no, I don't necessarily think that a landfill in a 100-year floodplain would be detrimental.

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Q Okay. To human health or the environment?

A Yeah. It's not necessarily so.

Q Okay. So let me back up, then.

Do you know whether the footprint is in the floodplain?

A I don't believe it is.

Q Okay. I thought you testified earlier that you didn't know, so...

A No. I said that I didn't site the -- I didn't determine where the footprint was --

Q Okay.

A -- was located.

Q So, then, can you tell me whose responsibility it is to determine whether the landfill is sited within a floodplain?

A Whose responsibility?

Q Uh-huh. If it's not yours, whose is it?

A I'm not sure.

Q Okay. Well, who determined where to site the landfill?

A I don't know.

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Q Whose responsibility was it to determine the shape of the landfill?

A I don't know that either.

Q Do you recall whether you had to provide any information regarding the floodplain analysis to assist with the decision as to where to site the landfill?

A Yes, I do recall that.

Q So who did you provide that information to?

A I'm not sure. Probably Mike Snyder or Kenneth Welch.

Q Okay. And can you remind me. Kenneth Welch, is he your client or your supervisor?

A I wouldn't necessarily say he's my supervisor, but Biggs & Mathews Environmental was my client.

Q Your client.

Do you know Ernest Kaufmann?

A I do.

Q Have you met him?

A Yes.

Q Have you communicated with him?

A We've had conversations.

Q About the proposed landfill?

A I'm not sure if it was about that topic or just general conversation.

Q What is his role or relationship to the

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proposed landfill?
A It's my understanding -- I guess he is the owner. I'm not really sure.
Q Okay. What is his relationship to Biggs & Mathews?
A I don't know.
Q Does he have any sort of employer or employee or client sort of relationship with you?
A No.
Q When you conducted your drainage analysis where you were comparing pre-developed and post-developed conditions, did you happen to compare it to Plum Creek Conservation District's model?
A I'm not aware of any model.
Q Okay. Did you analyze the discharge leaving site 21?
A Yes.
Q Does it go up?
A Excuse me?
Q Does it increase?
A What increase?
Q Does the water leaving site 21 -- does it increase?
A The -- the water -- does the water increase?
Q The discharge from site 21, does it increase

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with -- in post-developed conditions?
A It depends.
Q On what?
A On which storm event you're talking about.
Q Okay. So it does increase under some storm events and not others?
A I think, in the 25-year storm event, the -- the increase was .1 cfs.
Q And under the 100-year?
A I think it decreased.
Q Okay.
A By 60 or something cfs. I'm not sure. That's in the application, though.
Q It's in the TCEQ application?
A Yes.
Q So let's see. Are you familiar with EPA requirements for run-on and -- or for the drainage design system?
A No.
Q So can you -- do you know whether EPA requirements are consistent with TCEQ requirements?
A I don't.
Q So could you tell me today whether the proposed drainage system for this landfill meets or exceeds EPA requirements?

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A No.
Q Do you know whether TCEQ rules and EPA rules differ regarding run-on and runoff?
A I don't.
Q So you couldn't tell me whether EPA's rules are more stringent than TCEQ's?
A I could not.
Q Did you rely on any guidance documents in -- in conducting your pre- and post-development drainage analysis?
A What do you mean by "guidance documents"?
Q For instance, documents that are not in TCEQ's rules, but might be provided by TCEQ.
A No.
Q So let's turn to your floodplain analysis.
Why is it -- what is your understanding about why one needs to determine the limits of the floodplain for a landfill project?
A I'm not sure what TCEQ -- TCEQ's concerns were in this case.
Q So what was your goal in determining the limits of the floodplain, other than to just define them?
A I don't know that I -- I didn't have a goal. My job was just to define where they were.
Q Okay. And that was it? That was your sole

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objective in conducting a floodplain analysis was to determine where the limits of the floodplain were?
A Yes.
Q So then is it fair to say that you didn't consider the design of the landfill footprint in doing a floodplain analysis?
A I'm not sure I understand your question.
Q Did you consider the boundaries of the landfill footprint when you conducted your floodplain analysis?
A No. The -- the floodplain analysis that we submitted was for the existing conditions.
Q Okay. So did you ever -- I think I might have asked you this earlier today, and I just want to make sure I got the answer right.
So do you know whether the landfill boundary goes right up against the floodplain?
A I don't know about right up against the floodplain. I'm not sure what that would constitute, but I'm certain that the -- any fill from the -- the landfill is outside of the floodplain.
Q "Any fill from the landfill."
Can you explain what you mean by that?
A Well -- so the landfill is not just the landfill footprint. There are -- there is the -- the berm for the perimeter drainage channel in most cases or

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a berm for a detention pond that would be compromised of fill.

Q That would be compromising to fill?

A No. Compromised of fill.

Q Okay. And so all of -- so the -- the detention ponds -- what you're saying is that the landfill and the detention ponds, all of those are within -- or outside of the floodplain; is that right?

A All of those are outside of the floodplain, yes.

Q What was your role in -- in preparing closure and post-closure documents?

A I don't think that I had a role.

Q So you didn't provide any information related to closure and post-closure?

A No.

Q Do you know who was responsible for that?

A I don't.

Q Do you know whether pond maintenance is required for post-closure?

A I don't know for certain, no.

Q Okay. What role did you play in designing or siting the access road to the proposed landfill?

A I didn't have anything to do with -- with the location of it, and I didn't conduct any roadway design.

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Q Okay. Did you conduct any sort of analysis related to the proposed site access road?

A Can you repeat that?

Q Did you conduct any sort of analysis related to the proposed site access road?

A I -- I sized the -- the culverts.

Q Is that all you did?

A I believe so.

Q Do you know whether -- do you know what type of daily cover will be used by the landfill operator?

A No.

Q Do you know whether they intend to use alternative daily cover?

A No.

Q If they were to -- if the operator were to rely on alternative daily cover, would that have any impact on any of your analyses that you prepared in Attachment C?

A Can you ask that question again?

Q Does alternative daily cover -- the use of alternative daily cover, does that have -- does that factor into any of your analyses?

A No.

Q So -- so the use of alternative daily cover would not have any impact on erosion and sedimentation

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control plans?

A I don't know what -- what you mean by "alternative daily cover."

Q Okay. Do you know what alternative daily cover is?

A No.

Q Okay. You mentioned earlier that you'd been to maybe ten or 15 landfills; is that right?

A I don't believe that's what I said, no.

Q Okay. How many landfills have you visited?

A I believe the original question was how many I'd seen, and I think that I said ten or 15.

Q Okay. Well, you might be right about that.

So how did you see them if you didn't visit them?

A Well, I guess I saw them with my eyes.

Q Did you drive by them?

A I've driven by landfills before.

Q So of the ten to 15, how many did you actually visit?

A I'm not sure.

Q Any of them?

A Yes.

Q Less than five?

A I don't know.

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Q Maybe five?

A Maybe five.

Q So then the other five to ten landfills that you've seen, would those have been from driving by?

A Maybe.

Q Or is there another way you would have seen them?

A Well, I guess I've seen them on aerial photos as well, too.

Q And do you recall what the -- do you recall whether the landfills that you've seen or visited were rectangular shaped?

A I don't recall.

Q Do you remember what shape they were?

A No.

Q Do you remember observing use of daily cover on those landfills?

A I think I have seen that before, yes.

Q And what did that daily cover look like?

A I believe it was soil.

Q Okay. So all of -- in every instance where you've observed daily cover on a landfill, was it always soil?

A I think that's true.

Q Okay. So you've never observed alternative

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daily cover, as far as you know?
A No.
Q Okay. So I think we established that at this time you're not exactly sure what TCEQ rules require regarding the floodplain analysis, other than that you define the floodplain; is that right?
A No.
Q Okay. What else do the TCEQ rules require, other than defining the floodplain, with regard to the floodplain analysis?
A Can you ask that again.
Q What do -- how do the TCEQ rules address floodplains in the landfill rules?
A I'm not sure. I'd need to review that.
Q Okay. So when you were conducting your floodplain analysis, what TCEQ requirements were you attempting to address?
A I was just trying to determine where the floodplain was.
Q Okay. So in determining where the floodplain was, did the observations you made from your site visits inform your analysis at all?
A Yes.
Q How so?
A Well, during my site visits, I observed the

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type of land cover that was there. I observed the condition of the -- the creeks and the floodplains. I observed some of the culverts, things of that nature.
Q Starting with the land cover, how did that factor into your floodplain analysis?
A Well, it -- it helped me develop the watershed characteristics.
Q Go on. How so? What -- what about the watershed characteristics was influenced by your observation of the land cover?
A Well, it helped me determine the -- the runoff curve number, for example.
Q Okay. What about the Manning's roughness coefficient?
A What about it?
Q Did your observation of the land cover influence or impact in any way the Manning's roughness coefficient that you relied on?
A Yes.
Q How so?
A It gave me a -- my site visits gave me a mental picture of -- of the type of vegetation that existed, the -- how sinuous the streams were or were not, that type of thing.
Q Okay. So I'm going to ask you to walk me

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through the steps that you took to conduct your floodplain analysis.
What was the first step?
A Probably visiting the site.
Q Okay. And after that?
A I would -- I developed the -- the plan and the -- I guess -- I guess probably the next thing would have been determining the watershed.
Q Right. Okay. And then?
A I would conduct the hydrological analysis.
Q So did you first have to decide on the size of the drainage areas that you were going to analyze?
A I don't know that I would use the word "decide."
Q What would you use? What word?
A I would evaluate the topographic map to -- to estimate the watershed.
Q Are there any professional rules of thumb or guidance documents that inform your determination of the watershed drainage area?
A I'm not sure that there are.
Q Okay. So other than looking at a map, what other factors might you consider?
A That's about all I can think of right now.
Q Okay. Do you have an opinion about what the

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impact might be of relying on a drainage area that is too large?
A As it relates to?
Q As it relates to your floodplain analysis.
A Okay. If my drainage area were too large, then the floodplains may be more extensive than they would be otherwise.
Q Did the size of the drainage area that you used for your analysis that was submitted to TCEQ differ from what you submitted to Caldwell County?
A Did the size of it?
Q Yes.
A I don't believe so. It -- it's possible that it did, because the extent of the study was a little bit different, I believe, but I don't -- I don't recall that specifically.
Q Okay. So after determining the drainage area, the watershed, what's the next step?
A I would determine if subbasins were necessary to -- to estimate the discharge at certain locations, and I would determine what locations that I would want to estimate discharge.
Q Okay. So how do you determine when subbasins are necessary?
A There are various ways. For example -- I

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believe it's CP12 in the application. We wanted to know what -- what the flow rate or discharge was at CP12, which is -- is where Dry Creek crosses -- I believe it's FM -- the FM road south of the reservoir. So that would be one example.

Q Okay. And others subbasins?

A Other subbasins were ones that -- that crossed the permit boundary. So we would want to know what the flow rate is there leaving the permit boundary.

Q Okay. So are there -- so you're not always looking at the discharge leaving the permit boundary?

A Excuse me?

Q Well, I asked what influenced the subbasins, your decision to --

A Uh-huh.

Q -- have subbasins, and I thought I understood you to say just now that you wanted to look at where the -- you wanted to look at the permit boundary.

A That's one of the locations that we -- that we wanted to know the discharge at, yes.

Q So were there locations other than the permit boundary where you were looking at the discharge?

A Yes.

Q Other than site 21?

A Yes.

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Q Okay. Tell me about those.

A For example, I believe we looked at the flow rate of Dry Creek crossing Homannville Trail.

Q Okay. Any others?

A Yes.

Q Go on.

A I think there were other subbasins that would have discharge crossing -- is it FM 1144? I don't recall what FM road it is, but the FM road there south of the site.

Q Okay. Anything else?

A I think there might have been some other subbasins where we were trying to evaluate the flow rate coming on to the property, so maybe at the property boundary.

Q Right. But -- okay. What about where the proposed access road would be located?

A Well, that was a separate analysis, I think, but certainly we -- we -- there were times when we wanted to know the flow rate at that road, yes.

Q Is that included in the application material?

A I think so.

Q Okay. Is there a consequence if the subbasins are too large?

A You'd have to be more specific for me to

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provide an answer to that.

Q Well, I'm asking a general question.

Do you know whether there are any consequences to having a subbasin that's too large?

A Well, I don't know.

Q Okay. So is the size of the subbasin important to your analysis?

A It could be.

Q But it might not be?

A Well, the -- generally, the subbasins are determined by where you need to know information. So just by it being bigger is really inconsequential.

Q Okay. So after you determined the subbasins, then what's your next step?

A I'm trying to remember where -- where we were.

Q The watershed, then the subbasins for your floodplain analysis.

A Well, I would -- I would go and -- I would determine the watershed characteristics for each subbasin.

Q What does that mean, "the watershed characteristics"?

A Well, that means that I would look at what the curve number would be for that -- that particular basin.

Q And what -- what is curve number?

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A Curve number is -- is specific to a particular method in hydrology; typically, the SCS method. And it is -- it is a factor or a coefficient that's used to determine precipitation losses.

Q Earlier, I think you talked about how your observations from your site visit informed the curve number.

Do you recall that testimony?

A I do.

Q So -- and I think you also testified that you didn't take any notes or photos or document your observations from your site visit; is that right?

A That's correct.

Q So how is it that your -- what about your observation specifically -- how did you tie that into your -- the curve number?

A On my site visits, I -- I wanted to pay particular -- with regards to the curve number, I wanted to pay particular attention to the type of vegetive cover that was at the site.

Q And -- and what is it about the vegetative cover that influenced the curve number?

A Well, if -- if you have a different type of vegetation, it will have a different -- different curve number. For example, you know, pastureland versus

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forest, for example.
Q Okay.
MS. PERALES: Can I have -- can we go off the record for a second.
THE VIDEOGRAPHER: It is 1:37 and we're off the record.
(Recess taken from 1:37 p.m. to 1:42 p.m.)
THE VIDEOGRAPHER: It is 1:42 and we're back on the record.
Q. (BY MS. PERALES) So, Mr. Traw, I would -- I'd like to direct your attention to what's been marked as Exhibit 4.
(Exhibit 4 marked.)
Q. (BY MS. PERALES) Can you take a look that and see if you recognize it. And I made copies. Brent needs one.
Do you recognize it?
A Uh-huh.
Q So can you identify it?
A Yeah. I think it's page C2-B-5.
Q What is it?
A It's a table.
Q Of?
A SCS Unit Hydrograph Lag Time Existing Watershed Characteristics for 130 Environmental Park.

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Q Is this a document that you prepared?
A Yes.
Q Is this a document that was sealed by you?
A It's -- it's within the section that's sealed by me.
Q Okay. What is -- what is this document intended to represent?
A It's intended to inform, I guess, the reader of the application as to how we calculated lag time.
Q What is lag time?
A Lag time is a -- a factor in the shape of the hydrograph.
Q And is this for the floodplain analysis?
A I believe it is. This is out of C2.
Q Okay. So at the top of this table, there are the terms "Sheet Flow," "Shallow Concentration Flow," and "Channel Flow."
Do you see those?
A I do.
Q Can you explain the difference between shallow concentration flow and channel flow?
A Between shallow concentrated flow and channel flow?
Q Yes.
A I can.

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Q Please do.
A Okay. Channel flow is -- is when water in the watershed is flowing down a channel.
Q Okay. Do you recall what my question was?
A I don't guess I do.
Q The difference between channel flow and shallow concentrated flow.
A Okay. And shallow concentrated flow is what would occur between sheet flow and channel flow.
Q Can you be more precise?
A I don't know that I can.
Q Okay.
A The -- the method that we used was from TR-55, and it's not exactly real clear either.
Q Okay. So what is TR-55?
A Technical Report 55.
Q What's it address?
A It addresses hydrology methods. I can't recall the entire title.
Q Okay. But as far as you recall, TR-55 doesn't provide a very clear definition of shallow concentrated flow?
A It -- I think -- it might even say it's -- it's what occurs between sheet flow and channel flow.
Q Okay. And that's your understanding, too?

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A Generally.
Q Would you have a more precise understanding of what it might be, shallow concentrated flow? Do you have a more precise description?
A It's just -- it's the type of flow that occurs after sheet flow.
Q Okay.
A As -- as a drop of water is making its way from the upper reaches of the watershed to its outlet.
Q Okay. So is -- is there a -- is there a circumstance or a set of conditions that would make shallow concentrated flow more appropriate than channel flow?
A Yes.
Q Okay. Please describe that.
A I believe TR-55 talks about using channel flow when you can define the channel shape or if you have -- have cross-sections for that channel.
Q Okay. And so when would one use shallow concentrated flow versus sheet flow?
A TR-55 is fairly specific on sheet flow in that it generally ends after approximately 300 feet.
Q Okay. So shallow concentrated flow is just a default if it's not -- if it's not sheet flow and it's not channel flow?

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A I don't know that I would use the term "default."
Q What term would you use?
A It's just the type of flow that occurs between sheet flow and channel flow.
Q Okay. So how is this information that's in Exhibit 4 -- how is it used?
A This information is -- in the table is used to determine the lag time, and that lag time is a factor in the SCS method for calculating discharge.
Q Is lag time the same as time of concentration?
A No.
Q What's time of concentration?
A Time of concentration is the time it takes for the most hydraulically distant portion of the watershed to reach the outlet.
Q Okay. And lag time, what is that?
A Lag time is -- is closely related to -- kind of a concentration. It's just -- it's -- it's off by a linear factor.
Q Can you describe that further?
A I think it's .6, but I'd want to recall the -- I'd want to look at TR-55 to make sure.
Q But --
A They're very similar.

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Q Okay. So would you -- is -- do you use lag time in a manner that's different from time of concentration?
A I don't use time of concentration in this analysis.
Q Okay.
A Other than to calculate lag time.
Q To calculate lag time.
And how is lag time used? What's it used for?
A It's used in the SCS method described in TR-55 to determine discharge and the shape of the hydrograph.
Q Do you know whether time of concentration is used to determine rainfall intensity?
A It can be.
Q Do you know if rainfall intensity is critical in determining the peak flow?
A It can be.
Q Is rainfall intensity critical in determining the floodplain?
A It can be.
Q Is it your understanding that the higher the time of concentration, the lower the rainfall intensity?
A I'd want to go and -- and review some -- can you just ask the question again?

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Q The higher the time of concentration, the lower the rainfall intensity; is that accurate?
A The higher the time of concentration, the lower the rainfall intensity?
Q Yes.
A Specific to this case or in general conceptual terms or...
Q Well, let's start with specific to this case.
Do you know?
A In this case, I don't think it matters.
Q What about generally?
A Generally, it could, yeah.
Q Why is it that you don't believe it matters in this case?
A Because I'm applying rainfall across many subbasins, and one time of concentration in one particular subbasin doesn't affect my precipitation.
Q Okay. So what criteria did you use in developing the information on the table on Exhibit 4?
A Can you repeat the question?
Q What criteria did you use? What standards did you use in developing --
A TR-55.
Q Okay. And did you use TR-55 to determine the shallow concentrated flow?

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A I used it as a guide, yes.
Q So if we were to look at -- on Exhibit 4, DC-2, you have the water course length as 8,945 feet.
How did you come to the conclusion that DC-2 shallow concentrated flow length was 8,945 feet?
A Under "Shallow Concentrated Flow"?
Q Yes, that's where it is.
A Well, it was the -- it was the -- that was the length of the flow path, the 8,945.
Q How did you determine that that was the length of the flow path?
A Well -- so when sheet flow ended, that's when shallow flow -- shallow concentrated flow begins. And then it ends when channel flow begins. And channel flow began -- I'm not sure in this case where exactly that occurred on the map. If we had that application, I might be able to show you.
Q We do. This is all of Attachment C.
A Good gosh. Is this in, like, reverse order or something? I don't know.
Q I might have messed it up a little when I pulled it up, but I don't think I did.
A These are double-sided?
Q Some of them might be.
MR. BRATTON: Is that what you want?

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THE WITNESS: I can't tell. Is that from...
MR. BRATTON: Off-site existing.
THE WITNESS: Okay. But it -- we prepared several maps that are very -- the same. Can you tell me what page is the -- that's C1.
MR. BRATTON: C1.
THE WITNESS: Okay. Okay. I'm not seeing what I'm looking for. I can tell you just generally, if that's helpful.
Q (BY MS. PERALES) Okay. Did you check in C1?
A What's that?
Q Did you look in C1?
A Well, this is from C2. And I'm not sure that what I'm looking for was included in C2. But I can -- I can -- okay. I'm not sure I'm going to be able to tell from -- from this.
Generally, I believe in this case -- it was DC-2 you were asking about; right?
Q Right.
A Okay. And -- I'll look at that watershed to make sure. Okay. DC-2. Okay. My general recollection is that -- that I used channel flow, where I had sufficient data, to make accurate assumptions on the geometry of the channel.

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Q So where would I find that type of information if I wanted to see what the basis of your data is on this document?
A On this document? On just this page?
Q Well, for starters, yes. So for DC-2, which we were just talking about --
A You couldn't -- you wouldn't have that information on this page.
Q I know. That's why I'm asking you.
Where would I look to determine what the basis is for the information that's on here?
A I'm not sure where you would look. I would look in the digital files or in the model.
Q You prepared this document; right?
A I did.
Q So you know what -- what you were relying on, the basis for the numbers in here. Isn't that accurate?
A Well, I did at the time. I mean, it's been a long time since I prepared that. I don't recall, you know, the moment in time when I determined where that ended or stopped or what I relied on.
Q Okay.
A Only in general terms.
Q Okay. But what I'm asking is, what -- where is the information that you used that you relied on to

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create this document?
A Oh, it was a topographic map.
Q And it's not in the application materials?
A Well, it is to a certain extent. It's just, from these copies, it's difficult to tell where -- where shallow concentrated flow stopped or where it ended and channel flow began.
Q My question is specifically -- so you, as a professional, have prepared a summary on this table of information, and it's based on specific data that you relied on, specific information that you relied on. I want to know what that information is.
A Okay. It was -- generally, this -- this topographic map.
Q Not generally, specifically.
A I don't -- the topographic map and my site visits, that information. I could -- I could replicate this table with the topographic map and -- and a digital map.
Q I'm -- and to be clear, I'm not asking you to replicate anything. I'm asking you where I would look to determine where this 8,945 number came from. What could I tie it to?
A The flow path.
Q What document?

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A The -- well, for example, the flow path is labeled as primary reach on -- on many of the maps.
Q What is that based on?
A The thalweg of the stream.
Q So let me see -- what are you pointing to here?
A I don't know. The -- on this copy, the page number's been removed.
Q So let me -- can I take a look at this?
A Sure.
Q This is a document from Attachment C; correct?
A I think it is, yes.
Q Well, this stack of documents is -- this comprises Attachment C; right?
A I don't know. That's what you've represented to me.
Q Okay. Well, does this document bear your seal?
A It does.
Q So you're familiar with this document?
A I think so, yes.
Q You prepared it?
A I just don't know what page number it is.
Q Okay. But you prepared it?
A Or what -- or what attachment it was in or that kind of thing.
Q Well, I think you testified earlier that the

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extent of your work on this work was Attachment C; correct?

A I think that's probably accurate.

Q Okay. So if this document bears your seal, then it's from Attachment C; right?

A I think it is from Attachment C, yes.

Q Okay. So what does this document represent?

A It's titled "Existing Condition Facility Boundary Areas," but -- so in general, it has subbasins of the watershed. It has comparison points. It has the permit boundary, the property boundary. It has topographic information. It shows the -- the primary reaches and secondary reaches. It has a table comparing the existing condition drainage boundary areas, the drainage areas of each basin. It has 25-year peak discharge, 25-year volume, 100-year peak discharge, 100-year volume. It tells us that the contours and elevations, when in the boundary, are provided by Dallas Aerial Service. I can't read this -- this other note.

Q Okay. That's fine.

Do you care to look at this?

MR. BRATTON: No.

MS. PERALES: Okay. Thank you.

Q. (BY MS. PERALES) Is there anything else?

A I hope these aren't in the wrong order.

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Q Is there anything else you could direct me to to determine where specifically the information in this table came from?

A I don't think there is a -- a document that -- that supports that directly, no. I don't think we have a map or anything that's just for that.

Q Or documents.

A I'm not sure what you're asking.

Q I'm asking for the basis of the information that's included here.

A Okay.

Q Where would I look?

A For the basis of it? I used TR-55 to -- for the basis of -- of this document.

Q For the basis of the information, the data included here?

A Some of the data came from the topo map itself.

Q Okay. That's what I'm asking.

A And my site visits.

Q So the full spectrum of the information that you relied on to create this document is a topo map, your site visit, TR-55.

Do I have that right?

A There might be something else, but it doesn't come to mind right now.

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Q Okay. So staying with Exhibit 4. The second to last column from the right, do you see that?

A This one?

Q Right. So what does that column represent?

A It says, "Time of Concentration" in hours.

Q Okay. Is this -- is this used to select the rainfall intensity for modeling the floodplain?

A The time of concentration?

Q Yes.

A No.

Q Okay. Are the times of concentration reflected here correct?

A I believe they are.

Q Is it the lag time that you used to select the rainfall intensity for modeling the floodplain?

A The lag time is used to determine the shape of the hydrograph and the hyetograph for the modeling.

Q Okay. How do those relate to the peak discharge?

A Well, they're used in the SCS method to calculate the -- the hydrograph and then, of course, the hydrograph is -- is determined for the outlet of that subbasin, and then the peak discharge would be the highest point of the hydrograph.

Q Okay. So are the times of concentration

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reflected here -- are those based on reasonable assumptions?

A I believe they're -- they're -- they're based on the guides of TR-55 and the data that was used to prepare this application.

Q I don't have any copies.

MS. PERALES: Can I get this marked, please. I'll have to make more copies.

(Exhibit 5 marked.)

Q. (BY MS. PERALES) Can you take a look at what's been marked as Exhibit 5?

A Okay.

Q Do you recognize this document?

A I don't.

Q Does it look familiar to you at all?

A I don't recall it.

Q Does it -- does -- do you recognize it as a document that might be from TR-55?

A No, it's not from TR-55.

Q Okay. So you -- if the -- if the lag time goes up, what happens to the peak discharge in the hydrograph?

A It would be depending -- on a case-by-case basis.

Q Okay.

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MS. PERALES: Can I get this marked.
(Exhibit 6 marked.)
A Can I put this somewhere?
Q. (BY MS. PERALES) Yeah. Can you just put it back together and I'll take it from you.
A I'll try to put that clip on there. Do you want me to try?
Q Sure. I can do it. I put it on there in the first place.
A Got it.
Q Thanks.
Do you recognize what's been marked as Exhibit 6?
A Yes.
Q What is it?
A It's page C2-B-14.
Q And what does it represent?
A It's a page out of the application and Attachment C2.
Q What does it represent?
A Oh, it is -- the title of it is "130 Environmental Park Simulation Run 100yr 10day (smoothed)." And I believe this is from the HEC-HMS model. It's a printout from the modeling software.
Q So it's the -- it's a printout from the

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modeling software.
Is that modeling software to show the peak discharge in the 100-year storm event?
A Yes, peak discharge is listed.
Q How is this peak discharge used?
A Being from C2, this -- this peak discharge, in certain locations, is used as a steady state flow rate in HEC-RAS to determine the -- the extents of the floodplain.
Q Okay. So this was used in your floodplain analysis?
A Yes.
Q Are the calculations reflected here affected by the times of concentration from Exhibit 4 that we were just looking at?
A No.
Q Are they affected by lag time?
A Lag time is a -- is a factor in the results of the hydrologic modeling.
Q So is that a "yes"? Is the -- are the calculations shown here affected by the lag time?
A Lag time is -- is -- was a part of the calculation to determine these results.
Q Okay. So it sounds to me like the calculations are affected by the lag time.

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A That wouldn't be the wording that I would choose, but, I mean, I...
Q You change the lag time, you get different results?
A Yes.
Q Okay. Are the calculations presented in this table correct?
A I believe they are.
MS. PERALES: Can I get this marked.
(Exhibit 7 marked.)
Q. (BY MS. PERALES) Can you take a look at what's been marked as Exhibit 7.
A Uh-huh.
Q Do you recognize this document?
A I think I do.
Q Is this a document that you signed?
A Like I said, I'm really not sure what this is.
Q Can you turn to page 2 of the document? Does that bear your signature?
A Yes. So the first two pages are a letter, but I'm not sure what the rest of it is.
Q And the third page, does that bear your seal?
A Yes.
Q Does the fourth page bear your seal?
A Yes.

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Q And then do you see where there is the box on the fourth page that says, "These documents have been prepared in accordance with the development regulations of Caldwell County" --
A Uh-huh.
Q -- "prepared by: Tyson Traw"?
A I do.
Q Do you now recall what these documents are?
A I recall what they are in and of themselves, but I don't recall the combination of them.
Q Okay. What is your understanding of what Exhibit 7 represents?
A My understanding is Exhibit 7 represents the collection that's -- of paper that's stapled here.
Q Okay. What is the collection of paper that is stapled here?
A I don't recall. I recall parts of it, but I don't recall all of this being together as one package.
Q Okay. And that's not my question.
A Okay.
Q But we can start with the first two pages.
Please describe what the first two pages are.
A Okay. I believe the first two pages are a letter to Tracy Bratton and copied to Kasi Miles.

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Q Addressing?
A **Let me see. I believe they're addressing the preliminary plat application for 130 Environmental Park.**
Q And do you recall whether the -- this letter is responding to comments?
A **It is responding to comments, yes.**
Q Okay. And again, this is a document that you signed; right?
A **Exhibit 7 or these first two pages?**
Q We're talking about the first two pages right now.
A **Okay. Yes.**
Q So if you turn to the third page, do you recognize that?
A **I think so.**
Q And what is that third page?
A **I believe this is a portion of the submission in support of the preliminary plat for 130 Environmental Park.**
Q Would it have been enclosed with the two-page letter that comprises the first part of Exhibit 7?
A **I don't recall.**
Q Do you want to take a look at page 2 of that letter? Do you see the note that explains the enclosure?

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A **Okay.**
Q Does that help you recall whether the third page might have been enclosed with this letter?
A **From my memory, I believe there were more attachments.**
Q Right, but my question is with regard to the third page.
A **I'm not sure, because it's difficult to -- to take, you know...**
Q Because you can't tell whether the document on page 3 that bears your seal and has the date 2/19/15 is what is being reflected in the description of the enclosure of the letter dated February 19th, 2015?
A **No. I think there is -- there is possible -- it's a possibility that some of this may be taken out of context without the entire package.**
Q I'm asking about the third page.
A **Okay.**
Q I'm trying to go page by page.
A **Okay.**
Q Do you recall whether this page was part of the enclosure that was submitted with the letter?
A **Well, based on the dates, I think they're the same, but I don't recall it.**
Q Okay. The fourth page, take a look at that.

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A **Okay.**
Q That bears your seal; right?
A **Yes.**
Q It bears your signature; right?
A **Yes.**
Q Could this also have been part of the enclosure that came with the letter that's addressed to Tracy Bratton, the first two pages of this document?
A **I'm not certain, but it's certainly possible, yes.**
Q Okay. In any event, it is a document you prepared?
A **Yes.**
Q Can you turn to the next page?
Does that look like a document you prepared?
A **Maybe. I'm not sure.**
Q Okay. Can you turn to the next page?
A **Yes.**
Q Does that look like a document you prepared?
A **Maybe.**
Q If it wasn't you, could it have been somebody else from Biggs & Mathews?
A **I don't think so.**
Q Can you say whether it was you that prepared

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this document?
A **Again, it's -- it's obvious that some portions of that submittal are missing from this, so it's very difficult to say if one sheet was included or not.**
Q But that's not my question; right? You understand --
A **I'm not sure. I'm not sure what your question is, ma'am.**
MS. PERALES: Do you want to read it back.
(The record was read as follows:
"Q Can you say whether it was you that prepared this document?")
A **It probably was, but I can't say with certainty, because my name's not on it, and I'm -- I'm not sure if this was a portion of the original submittal or not.**
Q. **(BY MS. PERALES) Okay. So we'll just assume that it was either prepared by you or someone else using Biggs & Mathews, Inc., and submitting it to Tracy Bratton.**
A **Okay.**
Q Because apparently that's a possibility.
A **Well, I'm just saying that they're -- what I recall were there were more sheets in this submission, so I don't know if sheets had been removed or added. I**

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just know that this -- this is not what I recall submitting.
Q Okay. So I'll represent to you that this is an excerpt, that some of the sheets have been removed, but at this point, my question was whether you prepared this, and your answer, as far as I understand, is that maybe you did, maybe not?
A Well, if it were the one that Tracy Bratton received, then I think I probably did author this -- this page.
Q So in the comment letter from you, signed by you, do you recall whether you were -- whether the -- Mr. Bratton, the County's engineer, pointed out flaws in your drainage calculations?
A Can you repeat the question?
Q Do you recall whether Mr. Bratton pointed out flaws in your drainage calculations?
A I remember that he had some comments.
Q Right. Well, we know he had comments because you're addressing them in your letter. My question is about those comments.
Did he have any comments related to flaws in your drainage calculations?
A I think he disagreed with my drainage calculations.

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Q Okay. So what flaws or disagreements are addressed in this letter?
A Okay. Okay. What was the question?
Q What disagreements are identified in this comment letter?
A That were -- that were my comments or my response?
Q Yes.
A Okay. I don't know that there were -- there were any disagreements in my response. I just --
Q What disagreements are you addressing with your response?
A Okay. Mr. Bratton had a difference of opinion on my use of shallow concentrated flow, and he had a difference of opinion on my calculation of velocities, it looks like, for DC-5.
Q And did you address his comments?
A Yes.
Q And what is the net effect of correcting or changing the shallow concentrated flow, for instance?
A Well, in -- in some cases, the -- the floodplain analysis -- or the floodplain extent was different.
Q Okay. How so?
A Oh, well, in some places, it was reduced. Some

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places it was enlarged.
Q Okay.
A The net effect was fairly insignificant.
Q Let's see. Do you have Exhibit 6 in front of you? Can you turn to -- so keep Exhibit 6 handy, and on Exhibit 7, turn to 1, 2, 3, 4, 5 -- the 6th page that's SCS Unit Hydrograph Lag Time Existing Watershed Characteristics.
A Okay.
Q So -- actually, would like you to compare it to Exhibit 4, instead of Exhibit 6.
A Which one?
Q. Instead of Exhibit 6, Exhibit 4.
A So Exhibit 4 to Exhibit 7?
Q Yes.
So if we look at the time of concentration for DC-2 on Exhibit 4 and compare that to Exhibit 7, is there a change? Is there an impact?
A An impact? There is a difference.
Q Okay. And what is the difference?
A Which one did you want me to look at?
Q DC-2.
A DC-2. Okay. There is a difference.
Q Right. And what is the difference?
A I'm not sure what -- what it would be

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mathematically.
Q What about looking at the lag time? What is the difference?
A I guess -- for DC-2?
Q Yes.
A I guess it would be 107 minus 28.
Q Okay. Would this impact peak discharge calculations?
A I'm not sure.
Q So let's see. If we look at the lag time for DC-1 in Exhibit 4 and compare that to Exhibit 7, is there a difference there?
A Yes.
Q What's the difference?
A 107 minus 37.
Q Okay. What about for UNT-4? What's the difference between Exhibit 4 and Exhibit 7?
A Eighty-five and 29. Eighty-five minus 29.
Q So does this impact your peak discharge calculations?
A What's that? The difference in these exhibits?
Q Yes.
A These are from completely separate analyses.
Q Okay. Are they -- what is Exhibit 4 analyzing?
A Exhibit 4 is for a set of subbasins that was

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used in C2.
Q What is the purpose --
A Which was -- which was in the application.
Q In the application for what purpose?
A For the application of 130 Environmental Park.
Q Right, but what is the purpose of these calculations included?
A Floodplain analysis is Section C2.
Q And Exhibit 7, what is the purpose of those -- of that analysis?
A It was for the preliminary plat application for 130 Environmental Park.
Q What part of the preliminary plat?
A We were required to determine the location of the 100-year floodplain.
Q Okay. And there is a difference between the floodplain analysis and the 100-year floodplain that you did for Caldwell County versus TCEQ?
A Yes.
Q How is that?
A Well, it's a completely separate analysis and completely separate models.
Q Okay. But both of them are intended to analyze the 100-year floodplain; correct?
A Yes.

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Q And both of them bear your seal; correct?
A Yes.
Q So that seal represents that -- that the information included is accurate, to the best of your knowledge?
A Yes.
Q Okay. Did you at any time share or notify TCEQ of the floodplain analysis that you did for Caldwell County?
A Not that I recall.
Q Have you calculated the changes to the floodplain as a result of the modifications and the submittal to Caldwell County?
A Can you repeat the question?
Q Have you calculated the changes to the floodplain that resulted from your modifications to the peak discharge for Caldwell County?
A Well, no, I wouldn't calculate those.
Q You wouldn't -- you wouldn't calculate change -- or analyze changes to the floodplain?
A I wouldn't calculate the changes.
Q Okay. Would --
A The changes --
Q Have you analyzed changes to the floodplain as a result of modifying the peak discharge?

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A I looked at the changes.
Q Uh-huh.
A I've looked at them on a map.
Q Okay. And for what purpose?
A Mainly just for my own knowledge.
Q And what did you do with that knowledge?
A I realized that the changes had very little impact in the results.
Q Okay. And the impact, was that increasing the floodplain from what --
A Both increasing and decreasing the extents or location of the floodplain.
Q Okay. Would you be able to identify on a figure from Attachment C where the increases and decreases occurred?
A Probably not, because the scale of the drawings that we have here today are -- are such that you couldn't see the difference.
Q Do you have a document that reflects the increases and decreases in the floodplain?
A No.
Q Did you ever have that?
A A document, no.
Q Or a figure or...
A If I wanted to evaluate, I would do it on a

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computer. That way I can zoom in, you know, and see the -- a minute area.
Q And did you want to evaluate it?
A I wanted to see what the -- what the differences were, yeah.
Q So you did look at a computer?
A I did.
Q And do you have that information?
A That information is in the file, yeah.
Q In the file that you -- for -- what file?
A The file that I use to analyze all of 130 Environmental Park.
Q So would it have been produced to us?
A Absolutely.
Q Okay. So can you -- let's see.
MR. BRATTON: Just a few more pages back.
Q. (BY MS. PERALES) And this is page -- this is Exhibit --
MR. BRATTON: Six.
Q. (BY MS. PERALES) Six. Yeah. Can you pull out Exhibit 6. Keep Exhibit 7 handy.
Turn to the second to the last page on Exhibit 7.
So that second to the last page on Exhibit 7, what does that represent?

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A It is the -- the results from some HEC-HMS modeling.
Q And the modeling shows -- what -- what was the modeling for?
A Well, I think you represented to me earlier that this was included in our submission to the County for the preliminary plat.
Q And the modeling is for -- what do you do modeling for for a preliminary plat?
A Well, in this case, it was for a floodplain analysis.
Q Okay. And Exhibit 6 is also modeling for a flood -- floodplain analysis; correct?
A Yes.
Q But Exhibit 6 was submitted to TCEQ; correct?
A Yes.
Q So if we look at Reach 2.1 on Exhibit 6 and compare it to Reach 2.1 on Exhibit 7, is there a difference in the peak discharge?
A Yes.
Q And what is that difference?
A It would be 3,788.5 minus 2,900.9.
Q And same question for site 21 discharge.
A Site 21 discharge?
Q Yes.

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A Okay.
Q What is the difference?
A I don't see site 21 discharge --
Q Whoops.
A -- on Exhibit 7.
Q What about site 21?
A Okay. So site 21 discharge and site 21 on Exhibit 7, the difference would be 2,406.5 minus 2,346.5.
Q Okay. What about UNT-1? What is the difference in the peak discharge there?
A 815.9 minus 442.7.
Q And what about UNT-2? What is the difference?
A 374.1 minus 337.2.
Q And again, the information that is included in Exhibit 7, that second to the last page, was that information ever shared with TCEQ?
A Not that I recall.
Q You didn't share it; is that right?
A I don't think so.
Q So the differences in the -- in the peak discharges that we just looked at, do you consider those to be significant differences?
A It would depend upon which ones we're talking about.

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Q Okay. Which one is a significant difference?
A And -- and again, these are comparing two separate analyses.
Q Right.
A Okay.
Q Which one represents a significant difference?
A I suspect the difference in UNT-1 might be -- let's see. I'm really not sure that we can even compare these two, because in some cases, the -- the drainage basins are completely different. So I would be -- I really wouldn't want to compare one analysis to the other.
Q So -- so UNT-1, are you saying that that is -- UNT-1, as it's reflected in Exhibit 6, is different than the UNT-1 that's reflected in Exhibit 7?
A Well, I can't be for sure, because I don't see the -- the map that's with it.
Q Uh-huh.
A So there is -- I can't be certain of that.
Q So it's possible that UNT-1 in Exhibit 7 is different than the UNT-1 on Exhibit 6?
A It's possible. Yeah.
Q Okay. And -- and again, you were the one who determined the size of the drainage areas or the subbasins; is that right?

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A I determined the -- the subbasins and the watershed, yes.
Q Okay. Was the information that you submitted to TCEQ, Attachment C, was it peer reviewed?
A I think it was.
Q By whom?
A People in my office.
Q Who?
A Kerry Maroney, Kerry J. Maroney. Some others may have reviewed it in my office as well.
Q What is Kerry J. Maroney's role with regard to this landfill permit application?
A His role was limited.
Q But what is it?
A Essentially, nonexistent, other than maybe a peer review. I can't recall if I showed it to him or not, but it's pretty common in our office that we -- you know, if we design something, we might say, hey, what do you think about this or bounce ideas off each other, basically.
Q What about Kerry Maroney? What's Kerry Maroney's role with regard to this landfill permit application?
A I think he's the prime engineer.
Q Okay. And either Kerry J. Maroney or

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Kerry Maroney might have done a peer review of Attachment C for you; is that right?

A They may have looked at it, yeah.

Q Does Biggs & Mathews have a QA/QC procedure that applies to your work?

A I'm not aware of any formal document that describes it.

Q Okay. Do you recall who -- who it was that was responsible for the closure and post-closure plans?

A I don't.

Q Did you provide any input on -- well, first of all, do you have any opinion on whether pond maintenance is required during post-closure?

A I don't have an opinion on that, no.

Q Okay.

A We should have been looking at those. Those are a lot better copies.

MS. PERALES: Can I get this marked.

(Exhibit 8 marked.)

Q. (BY MS. PERALES) Can you take a look at Exhibit 8 and see if you recognize that document.

A Okay.

Q Is this a document that you prepared?

A Yes.

Q And this is a document you sealed; correct?

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A Yes.

Q And what does this document represent?

A It represents the drainage structure plan for the 130 Environmental Park.

Q Okay.

MS. PERALES: Can I get this marked.

(Exhibit 9 marked.)

Q. (BY MS. PERALES) Take a look at Exhibit 9 and see if you recognize this document. This is a document that you did not seal; correct?

A Yes.

Q Did you -- have you seen this document before?

A I don't recall.

Q Would you have provided any information or input into Mr. Adams' development of this development?

A I don't recall if I did.

Q Okay. Can you tell -- does this doc- -- does Exhibit 9 -- the figure on Exhibit 9, does it include information regarding storm water control?

A I don't think that it does, no.

Q Anything related to drainage design?

A No.

Q Okay.

A Not that I'm aware of. I'm really not familiar with this -- this Exhibit 9.

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Q Can we take a short break and go off the record.

THE VIDEOGRAPHER: It is 2:49 and we are off the record.

(Recess taken from 2:49 p.m. to 3:08 p.m.)

THE VIDEOGRAPHER: It is 3:08 and we are back on the record.

Q. (BY MS. PERALES) So, Mr. Traw, were you responsible for -- for analyzing soil loss or soil loss equations?

A I believe there is a section of C2 that's about erosion, if that's what you're referring to.

Q Okay. Can you flip through this and see if you can find that.

A I'll try. It's front and back -- front and back, so it's got me a little...

Q I think it's the narrative portions that are front and back and the figures are front only.

A Okay. Is this the part you want to talk about?

Q Well, I'm asking you, if I wanted to talk about soil loss equations or erosion control, where -- where is that information?

A Well, the -- so the sections on erosion and sedimentation control are on C-11 and C -- or C1-11 and C1-12.

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Q And were you responsible for preparing those portions of the application?

A Yes.

Q So those portions of the Attachment C are also included within your analyses?

A Yes.

Q So when you were looking -- or analyzing soil loss equations, what slopes were used in your soil loss equations?

A I'd have to go back and look to see. I don't recall.

Q Is that information included in there?

A It may be. I think it is.

Okay. Can you repeat the question?

Q Yes.

What slopes were used in your soil loss or soil loss equations?

A Okay. A portion of that is on C1E7 of the application, and it looks like that the perimeter slope was 25 percent and the top slope was 6 percent.

Q So does the 25 percent -- does that represent the four-to-one slopes that the landfill is designed for?

A Can you repeat that?

Q Sure.

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Twenty-five percent, is that -- is that intended to represent four-to-one slopes?

A That's intended to represent the slopes that are on the landfill.

Q And is that four-to-one?

A Yeah. That's for the perimeter slope.

Q Okay. Do you recall whether there are any other slopes on the landfill face, besides four-to-one?

A I don't recall.

Q Are there two-to-one slopes on the landfill face?

A There may be some minor slopes on -- on a swale or something that are steeper than four-to-one.

Q What do you mean by "minor slopes"?

A Well, they don't -- they don't extend very far.

Q Okay. So there may be two-to-one slopes. And you said on swale?

A Uh-huh. For swales, yes.

Q Okay. Do you remember approximately how much of the landfill faces includes the two-to-one swale slopes?

A No.

Q Could it be as much as 20 percent of the landfill face?

A I couldn't say.

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Q In any event, the two-to-one slopes are not included in your soil loss analysis; is that right?

A I'm sorry. Repeat the question.

Q Two-to-one slopes are not included in your soil loss analysis?

A Not that I recall.

Q Okay. Do you recall how many two-to-one slope swales you designed?

A I don't.

Q Do you recall the size?

A Generally, they're -- they're like shown -- like what's shown in the plans here. I don't recall it, but we can find it.

Q What about this figure, C1F2?

A So this is a temporary plan.

Q Okay.

A So --

Q When you say "temporary," you mean interim or...

A Well, not the final cover.

Q Okay. That -- that sounds right.

And these would be swales that are -- that are present during the life of the landfill?

A Yes.

Q Okay. During the active life of the landfill?

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A The -- the ones that are permanent, yes.

Q Okay. And are these two-to-one?

A Some of them are.

Q And they look kind of like pyramids. Is that what we would expect to see?

A I think so.

Q Okay.

A In a sectional view, yeah.

Q Okay. Will there be -- do you anticipate that the two-to-one slope swales will have vegetation?

A On the -- for the final cover, I would, yes.

Q Okay. So it's your assumption that the vegetation will grow on the two-to-one slopes?

A Yes.

Q Okay. Speaking of vegetation, do you recall whether Parks & Wildlife recommended that only native vegetation be used?

A I don't.

Q Okay. Is there any reason that you wouldn't rely only on native vegetation?

A I don't really have an opinion on that.

Q Okay. Do you know what the recommended soil depths are for drought tolerant turfs?

A I don't.

Q Do you know if six inches of topsoil would be

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sufficient?

A I don't.

Q I want to go back to -- I'm sorry. Are you -- are you -- do you have any more --

A I'm trying to get oriented in how this is laid out. It's -- normally, I can just flip to a page, but they're -- they're different in your set here than what I normally use, so...

Q So what is it that you normally use?

A Oh, it's just a binder and all of them are -- are one-sided.

Q Okay. But are they in the same order?

A I'm not sure. I haven't gone through it here to determine that.

Q Do you -- the information that you use, is it the same information that would have been included in the technically complete application?

A Yes.

Q And so if this is technically complete, then it should match whatever information you relied on?

A Right.

Q Okay. And this -- I'll represent to you that this is technically complete, and it says so at the bottom.

So did you go back and review Attachment C

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from the application or whatever materials you had in preparation for this deposition?

A I did review some materials, yes.

Q So what did you review?

A I reviewed Attachment C. I re- -- I think that might be the only thing that I reviewed from the application.

Q Did you review anything outside of the application?

A I read Greg's deposition.

Q Anything else?

A I may have read some of the technical references.

Q Did you review Exhibit 2?

A What is Exhibit 2 -- oh, this?

Q Yes.

A I did not. Only to the extent that I -- that I saw that and asked Brent about it.

Q What did you ask him about it?

A What did I ask? I asked if -- if it should have been included in the discovery documents or not.

Q Okay. So I want to -- let's see -- clean up the questioning around Exhibit 5, which I put in front of you.

A Okay.

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Q Do you know whether this -- Exhibit 5 is an excerpt from an NRCS document?

A I don't know that, no.

Q Okay. Do you know what I'm referring to when I say "NRCS"?

A I believe I do.

Q What is it?

A Now that you ask -- National Resource Conservation Service, I believe.

Q Okay. And is -- is the NRCS -- is that a source that a professional engineer such as yourself would rely on?

A It would depend. It would be on a case-by-case basis.

Q Okay. What else did you do to prepare for your deposition today besides review the application materials that you were responsible for and Mr. Adams' deposition?

A Can you ask that one more time?

Q What else did you do to prepare for your deposition today?

A I think that's about it. I met with Brent yesterday. I believe I read some other depositions.

Q Besides Mr. Adams'?

A Yes.

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Q Do you recall whose deposition?

A I think it was one from Kenneth Welch and one from Tony Wescoupe (phonetic).

Q Was it with regard to this application?

A No.

Q What -- well, let's start with Mr. Welch. Which case or project was the deposition about?

A I don't recall.

Q Was it a landfill project?

A I think so.

Q What about Mr. Wescoupe? What was his deposition about? What project?

A I don't recall the project that it was -- that it was over.

Q Was it a landfill project?

A I assume it would be.

Q Why did you choose to review those two deposition transcripts?

A Because those were made available to me.

Q By whom?

A Kenneth Welch.

Q Okay. Did he -- did you ask him why you -- why he thought it would be useful for you to review those transcripts?

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A I don't recall asking him that, no.

Q Okay. When you met yesterday with Mr. Ryan, what did you discuss in preparation for your deposition today?

A We -- we looked over Attachment C. We talked about -- to make sure I answered the questions that were asked, and he tried to illustrate how the deposition process works.

Q Did you speak with anyone else in preparation for your deposition?

A No, I don't think so.

Q Okay. Did you speak to Mr. Welch at all in preparation for your deposition beyond just him giving you the transcripts to review?

A No.

Q Okay. As I recall, you testified that you did some modeling for the culverts for the site access road; is that right? Do I have that right?

A I don't recall whether -- to what extent they were modeled or -- or just designed. And I think it probably varies from one to the other.

Q Well, what was your role with regard to the culverts for the site access road?

A I sited them.

Q You sited them. Okay.

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Did you do any modeling?
A I believe we used HEC-RAS to model some of the -- the hydraulics for those culverts.
Q Would that have been you who did the modeling?
A Yes.
Q Did anybody else work with you on the culverts, the design and the modeling?
A Yes.
Q Who?
A Nash Gann. I think that was it.
Q And I want to make sure I understood your testimony regarding the dam adjacent to the landfill -- or the proposed landfill.
So what did you review with regard to the dam, if anything?
A I reviewed pictures of it first from the site visit -- from my site visit and from pictures that were taken previously.
Q Who took the pictures during your site visit?
A I'm not sure. I think it was Kenneth Welch, though.
Q And who took the pictures previously?
A I don't know.
Q Okay. Go on. What else did you --
A Okay. What was the question again? Sorry.

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Q What -- I don't really remember, but let's say what did you review with regard to the dam?
A Okay. I reviewed Exhibit 2. I reviewed the -- the as-builts. I reviewed some other documents that were related -- you know, related to the history of it.
Q Where did you get those?
A I think they were -- I'm not sure. It was one of the first things that I looked it, and that was a long time ago. I don't -- I don't remember what the documents were, and I didn't use them anymore for the application, other than just to familiarize myself that there was a dam on the site and what it generally consisted of.
Q Okay. Are you aware that the dam is classified as a high hazard dam?
A I am.
Q Okay. Did that play any role in -- in your analysis for this project?
A I don't think it played a role in any of the analyses, no.
Q Okay. So earlier, you mentioned that you provided status reports to Mr. Hodges on occasion.
A Uh-huh.
Q Did you ever receive any feedback from Mr. Hodges?

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A Such as?
Q Any feedback.
A I don't guess so. No.
Q So he had no response to your status reports?
A I guess he would acknowledge that he received them, perhaps. I don't recall any specific comments that he made about them.
Q Okay. So the landfill permit application, it includes a landfill footprint, but it also includes a couple of other -- I'll call them units or facilities, such as a used or scrap tire storage area, wood waste processing area, leachate storage facility, truck wheel wash.
Are you familiar with that?
A To some extent.
Q Are you familiar enough to know whether all of those specific areas that I mentioned, the truck wheel wash, leachate storage facility, used scrap tire storage area -- are those all within the flood -- or outside of the floodplain?
A I believe they are.
Q Have you reviewed the Caldwell County development regs or ordinance at all?
A I've read it, yes.
Q Have you made any determination or analysis

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regarding whether the proposed landfill complies with the development ordinance?
A I don't know that I've -- would have an opinion on that.
Q Do you have an opinion on that?
A No.
Q Okay.
A No.
Q So you haven't done that analysis?
A I've just read the ordinance.
Q Okay.
A As it pertained to the preliminary plat.
Q Okay. Have you evaluated the effect that the facility entrance road may have on the drainage comparison points on the southern property boundary?
A The drainage entrance -- the entrance road was included in the analysis.
Q It was?
A Yes.
Q So where would it be in the application?
A Well, we would account for it in terms of the -- the weighted curve number for the particular basin that it was in.
Q I think those are all of my questions.
MS. PERALES: I'll pass the witness.

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MR. MAGEE: I have a few -- couple of quick ones real quick.
THE VIDEOGRAPHER: Can we take a break?
MR. MAGEE: Sure. Or I can just use her microphone, if you want me to.
THE VIDEOGRAPHER: That works fine.
MR. MAGEE: Okay.
EXAMINATION
BY MR. MAGEE:
Q How are you?
A Okay.
Q Okay. It's going to be brief. I promise. I'm Eric Magee. I represent Caldwell County. I don't think we've met before today; correct?
A I think we met on the site visit.
Q Oh, that's right. I totally forgot about that.
A I don't know if we met formally, but --
Q We did. Thanks for reminding me.
I just wanted to make sure I had a couple of questions that Ms. Perales asked you correct, just for my own benefit.
You've referred, throughout today's deposition, as Biggs & Mathews Environmental as your client?
A Yes, sir.

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Q Is that a separate company than from where you work?
A Yes.
Q Okay. You work for Biggs & Mathews, Inc.; right?
A Correct.
Q And where is that located?
A Wichita Falls, Texas.
Q And then your client you've referred to as Biggs & Mathews Environmental, and that's a separate company, and that's located where?
A The -- I believe the main office is in Mansfield.
Q Okay. And when you've referred to -- who was your primary contact when you were dealing with Biggs & Mathews Environmental?
A I don't think I had a primary contact.
Q But one of the individuals that you spoke with concerning this project was Kenneth -- Kenneth Welch; right?
A Correct.
Q And he's with Biggs & Mathews Environmental?
A Correct.
Q Okay. What about Mike Snyder?
A Okay.

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Q Is he with Biggs & Mathews Environmental?
A Yes.
Q Okay. And then when Marisa -- or Ms. Perales was asking you some questions about peer review, you said it was re- -- I think you were referring to what's in front of you as Attachment C; right?
A Yes.
Q And you mentioned Kerry Maroney, Kerry J. Maroney. Are all of those individuals with Biggs & Mathews, the company you work for?
A Yes.
Q Okay. Were any portions of Attachment C in the draft phase sent to Kenneth Welch or Michael Snyder with Biggs & Mathews Environmental for their review?
A I'm sure they reviewed it. I don't know if it was sent to them or to someone else in Biggs & Mathews Environmental.
Q Who would have sent that from your office to them?
A Probably me.
Q Are -- do you know Greg Adams?
A I know Greg Adams, yes.
Q Did you work with him on this project?
A I don't know that we had anything that overlapped, but he certainly worked on the project.

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Q Do you recall if there were any comments or suggested changes that were provided to you from Kenneth Welch or Mike Snyder concerning your drafts of Attachment C?
A Not that I recall. Not that I recall.
Q So tell me about the process of Attachment C. You provided the drafts, all the written format, and then the, I guess, tables, maps, and other calculation data, the modeling that's consisted in there; correct?
A Some of the -- some of the document was produced from Biggs & Mathews Environmental, with -- with my input, and then I would review that, and then we would approve it. Other -- other portions were solely completed in -- in my office and then sent to Biggs & Mathews Environmental.
Q Give me an example of the type of information that would have been produced by Biggs & Mathews Environmental, your client, and then sent over for you to review.
A Well, it wouldn't -- it wasn't exactly like that. It was -- for example, they might have a typical drawing, for example, like a habel dike (phonetic).
Q Okay.
A That's standard. So I would have selected that detail from their library, for example.

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Q Were there -- was this all done by e-mail exchange or how -- how -- how was that task accomplished?
A I think it would vary.
Q And those e-mails back and forth, would that be contained in the e-mails that you provided to Mr. Whoever? I think you said you copied your e-mail database, as well as your -- I don't know what you called it. Like, your case database, all the information specific to this, and then provided it to someone potentially for discovery purposes.
A I'm -- I'm confused. Can you repeat the question?
Q Okay. I believe Ms. Perales asked you a question about the type of information for discovery purposes in this landfill application and if you had provided everything to be produced in discovery. And you gave an example of two different types. One was a digital record that you had that had all of your documents concerning, I guess, Attachment C and the work you performed on this and then you said there was a second set that was just e-mails provided separately.
A I think the e-mails just weren't -- weren't in the -- they're not typically in the project folder. We would have to get them in a different way.

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Q And so if there were drafts that were exchanged between you, those would probably be contained in the e-mails?
A Perhaps not, because again, if -- if those contain old drafts, then we would -- we would want to remove those so they don't get confused with -- with the -- the updated or revised work product.
Q And do you recall any revisions that were made by the suggestion of Biggs & Mathews Environmental that would change the portion you've certified?
A Not in a material way. It may have been typos or things like that.
Q Then the other question I think Ms. Perales just asked you was about status updates to Bill Hodges at HHNT.
A Uh-huh.
Q What -- tell me what you mean by "status updates."
A I think that was her term, actually.
Q Okay. Well, I thought you said -- this is what I wrote down: That he would contact you and ask for a status update.
A Okay.
Q Okay? I just want to know what you mean by that.

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A He would just ask where we are in the process of completion of different tasks.
Q And then how did you provide that back to him?
A Typically, it was over the phone.
Q So it was just a verbal update. There is not a document of where you drafted up -- when I think of a status update, I think of, like, I write something to someone and tell them, here. This is where I'm at with this project, and even, potentially, like, examples of what we've done so far, drafts of versions of things. And I just want to make sure I'm understanding what you mean by he called and asked you for a status update and you provided him with that.
A That's essentially what it would be is he would call and say, "How are we -- where are we in this process?" And I would tell him.
Q Okay. So there is nothing in written format?
A Not -- not that would -- not that would talk about status of -- of any part of the project. Not that I can recall.
Q Okay.
MR. MAGEE: I think I'll pass the witness.
MR. TATU: No questions.
MR. McCARTHY: Plum Creek has no questions at this time.

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MR. TUCKER: No questions.
MR. BRATTON: Nothing from me.
MS. PERALES: I guess we're done.
THE VIDEOGRAPHER: It is 3:38 and we are off the record.
(Proceedings concluded at 3:38 p.m.)

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CHANGES AND SIGNATURE

WITNESS NAME: TYSON TRAW, P.E. DATE: November 17, 2015

PAGE/LINE	CHANGE	REASON

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I, TYSON TRAW, P.E., have read the foregoing deposition and hereby affix my signature that same is true and correct, except as noted above.

_____

TYSON TRAW, P.E.

THE STATE OF _____)

COUNTY OF _____)

Before me, _____, on this day personally appeared TYSON TRAW, P.E., known to me or proved to me on the oath of _____ or through_____(description of identity card or other document) to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he/she executed the same for the purpose and consideration therein expressed.

Given under my hand and seal of office on this _____ day of _____ 2015.

_____

NOTARY PUBLIC IN AND FOR

THE STATE OF _____

My commission expires: _____

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SOAH DOCKET NO. 582-15-2082

TCEQ DOCKET NO. 2015-0069-MSW

APPLICATION OF 130 ENVIRONMENTAL PARK, LLC FOR PROPOSED PERMIT NO. 2383) BEFORE THE STATE OFFICE OF ADMINISTRATIVE HEARINGS

REPORTER'S CERTIFICATION

ORAL AND VIDEOTAPED DEPOSITION OF TYSON TRAW, P.E.

November 17, 2015

I, Candice Andino, Certified Shorthand Reporter in and for the State of Texas, Registered Merit Reporter, hereby certify to the following:

That the witness, TYSON TRAW, P.E., was duly sworn and that the transcript of the deposition is a true record of the testimony given by the witness;

That the deposition transcript was duly submitted on _____ to the witness or to the attorney for the witness for examination, signature, and returned to me by _____;

That pursuant to information given to the deposition officer at the time said testimony was taken, the following includes all parties of record and the amount of time used by each party at the time of the deposition:

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Ms. Marisa Perales (3h45m)
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Mr. Anthony Tatu (0h0m)
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Mr. Eric Magee (0h8m)
Attorney for Caldwell County

Mr. Edmond R. McCarthy, III (0h0m)
Attorney for Plum Creek Conservation District

I further certify that I am neither counsel for, related to, nor employed by any of the parties in the action in which this proceeding was taken, and further that I am not financially or otherwise interested in the outcome of this action.

Certified to by me on this 30th day of November, 2015.

CANDICE ANDINO, RMR
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JOHN MICHAEL SNYDER - September 21, 2015

SOAH DOCKET NO. 582-15-2082

TCEQ DOCKET NO. 2015-0069-MSW

APPLICATION OF 130 ENVIRONMENTAL PARK, LLC, FOR PROPOSED PERMIT NO. 2383) STATE OFFICE OF ADMINISTRATIVE HEARINGS

ORAL VIDEOTAPED DEPOSITION OF

JOHN MICHAEL SNYDER

September 21, 2015

ORAL VIDEOTAPED DEPOSITION OF JOHN MICHAEL SNYDER, produced as a witness at the instance of the Protestants and duly sworn, was taken in the above-styled and numbered cause on September 21, 2015, from 2:08 p.m. to 6:04 p.m., before Kim Pence, Certified Shorthand Reporter in and for the State of Texas, reported by computerized stenotype machine at the offices of Frederick, Perales, Allmon & Rockwell, PC, 707 Rio Grande, Suite 200, Austin, Texas 78701, pursuant to the Texas Rules of Civil Procedure and the provisions stated on the record or attached hereto.

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Ms. D. Lauren Ross
Mr. Dennis Hobbs
Ms. Katie Moore
Mr. Steve Odil

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SNYDER DEPOSITION EXHIBITS

NO.	DESCRIPTION	MARKED
1.	Notice of Deposition of John Michael Snyder, P.G. and Subpoena Duces Tecum	5
2.	Letter dated 10/10/13 from Arten Avakian to Ernest Kaufman Approving the boring plan	61
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(Exhibit Snyder No. 1 marked)
VIDEOGRAPHER: It is September 21, 2015, 2:08 p.m., and we are on the record.
JOHN MICHAEL SNYDER,
having been first duly sworn, testified as follows:
EXAMINATION
BY MS. PERALES:
Q Good afternoon, Mr. Snyder.
A Hello.
Q My name is Marisa Perales, and I am an attorney who is representing a couple of protesting parties in this case. And when I say "this case," I'm referring to the Application of 130 Environmental Park for a landfill permit. I represent TJFA, LP and a citizens group known as Environmental Protection in the Interest of Caldwell County.
I'm just going to go over a couple of basic rules, which I'm sure you're familiar with. But first, when I ask you questions, it would make things a lot cleaner for the record and helpful for the court reporter if you will wait -- wait for me to finish my question before you start your answer, and I'll attempt to do the same. I'll attempt to wait for you to finish your answer before I move on to the next question. Can we agree to that?

A Yes.
Q If you could make an attempt to respond audibly instead of shaking your head or nodding your head, again, that would make it easier to capture all of your responses on the transcript. Can you agree to that?
A Okay.
Q And if you need a break, if you want to grab something to drink or just walk around for a minute, just let me know and I'm happy to arrange that.
A Okay.
Q And -- and I think that's it. If you have any -- if you have any trouble understanding my questions, let me know and I'll try to rephrase them.
A Okay.
Q So I want to start with your educational background. Do you recall whether you provided a resume in this case?
A I think I did.
Q Okay. Now, who do you think you provided it to?
A To the attorney.
Q And that would be?
A Brent Ryan.
Q Okay. Do you recall whether he asked you for a copy of your resume in response to a request for

disclosures?
A I do not recall.
Q Okay. In front of you you have what's been marked as Exhibit Snyder 1.
MS. PERALES: Can you pass those around?
MR. RYAN: Sure.
Q (BY MS. PERALES) Have you seen that document before?
A No, I haven't.
Q Okay. So this is the first time you've seen that?
A Yes, ma'am.
Q Can you take a look at the fourth page of that document? Do you recall whether you've been asked to bring with you to this deposition any of the documents listed in that subpoena?
A No.
Q Okay. And so you have not brought any documents to this deposition with you. Is that right?
A I have not.
Q Okay. It's your -- is it your understanding that you were to provide expert testimony in this case?
A Yes.
Q And is it your understanding that as an expert witness, that you are required to disclose certain

information, including your background and professional experience?
A Yes.
Q Is it your understanding that you're supposed to provide all documents that you have prepared or have been prepared for you for your review in anticipation of testimony?
A Yes.
Q Have you complied with those responsibilities?
A To the best of my knowledge.
Q And how have you done so?
A Well, I've provided to the attorney documents that were -- were part of the document request originally, and we've -- we provided those to him.
Q Okay. And what -- what did you do to collect those documents?
A Well, huh, we did a lot of things, I guess. We -- we collected paper documents that we had. We collected emails that we had. Beyond that, I don't know.
Q When you say "we," who are you referring to?
A People in my office.
Q Can you list the names of the people you're referring to?
A Sure, Gwen Archer is our chief administrative

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assistant, and she would have been the -- the primary person, and others. I mean, there are other administrative that may have helped her, but she would have been the one that would have been responsible for pulling all of that information together.

Q Okay. And when I originally asked the question about what you did to comply with the responsibility of putting together all of the information that you have either reviewed or prepared, I was asking about you specifically. So what steps did you specifically undertake to ensure that all of the documents that you reviewed or that you -- that were prepared for you or by you were provided to the attorney?

A Well, I've collected all the documents that I had in my possession and directed the administrative assistant to pull anything else together that was -- that was part of the request.

Q Okay. And it's your understanding that among those documents was a copy of your resume. Is that right?

A To the best of my recollection, yes.

Q Okay. Well, I don't have a copy of your resume with me, so I'm going to be asking you some questions about your background.

A Okay.

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Q Can you tell me about your educational background, starting with college or university?

A I got a degree -- a Bachelor of Science in geology from the University of Cincinnati in 1975, a Master of Science in geology from The University of Texas at Arlington in 1977. In 1990 I also attended Oklahoma State University and some other postgraduate work that didn't result in another degree.

Q And what kind of postgraduate work was that?

A It was a hydrogeology program that was a -- a comprehensive program that resulted in -- or that included multiple classes and professors and resulted in nine graduate credit hours.

Q And your Master's in Science, what -- what area was that? What was the concentration?

A Well, it was geology, but I had specifically did a Master's thesis on subsurface geology stratigraphy of the -- of a canyon sandstone in Fisher County, Texas.

Q Great.

Are you currently a professional geologist?

A I am.

Q Are you a registered professional geologist?

A I am.

Q Since when?

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A Since the beginning of the program. I've forgotten what year it was. 2003, I think, was the beginning of that program.

Q And did you have to undertake any steps to become a registered professional geologist?

A Well, you had to document your education and experience, and you had to have other sponsors, and all that had to be pulled together and submitted to the board for their review and approval.

Q Who were your sponsors?

A Well, that's a good question. I remember some of them. Dr. H.C. Clark was one of my sponsors, I believe; an old friend of mine who is a geologist, who has since passed away, Gary Sandlin, and I don't remember beyond that.

Q Okay. Are you required to take continuing education courses as a professional geologist?

A Yes.

Q How many hours per year?

A Fifteen.

Q And are you up to date with those?

A I am.

Q As a professional geologist, are you familiar with the rules that -- that govern professional geoscientists?

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A I am.

Q Can you tell me what board governs the professional geoscientists?

A The Texas Board of Professional Geoscientists.

Q That's handy. Have you ever had a complaint or a grievance filed against you?

A No.

Q Ever been convicted of any crime other than like a Class C misdemeanor, traffic violation?

A No.

Q Going back to the rules that govern professional geoscientists, can you generally describe to me when a P -- a professional geologist is required to seal a document?

A Well, the -- the general rule is that if it's being presented to the public, you need to sign and seal it.

Q And "presented to the public," what does that mean to you?

A Well, it can mean a lot of things, but in this case, in the case that we generally practice in, it means that we're presenting it to a -- a public regulatory agency, which means you're presenting it to the public.

Q What significance does the seal have?

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A It -- it declares that you have done the work in accordance with the rules and with the care that a professional geoscientist would -- would do.
Q So when you personally seal a document with your own seal, you're signifying that you have prepared some work in accordance with the rules that apply to professional geoscientists. Is that right?
A I think that I agree with what you just said.
Q Okay. Why don't you put it in your own words. What is it that you are signifying when you place your seal on a document?
A I think I already did that, didn't I? Didn't I answer that question already?
Q I asked you generally, and I'm asking you now specifically what it is -- when you submit a document to the TCEQ that bears your seal, what is it that you are affirming to the TCEQ by adding your seal?
A I'm not sure that I'd go beyond what I just said.
Q Okay. So that you prepared the information in accordance with the professional geoscientist rules.
A (Nodded)
Q Is that right?
A Yes.
Q Okay. If you seal a document, does it mean you

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have personal -- personal knowledge of the contents of the document that you've sealed?
A Yes.
Q And so you've personally reviewed the information that was used to prepare the document. Is that right?
A I guess I need a little more clarity in that question.
Q So if we take, for instance, a report that includes identification of water wells, if your seal is on that report, does that mean that you personally have undertaken an investigation into the water wells that made their way into the report?
A Well, it means that I reviewed a report that may have been generated. It means that I may have also participated in searching for other water wells.
Q Okay. Could it also mean that you oversaw the preparation of materials that formed the basis of a report that you sealed?
A I think that's part of it.
Q Okay. Well, let's move on to your professional experience. What was your first job after college or university?
A I was a -- while I was in graduate school, I worked in a co-op program -- excuse me -- for the Lone

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Star Gas Company in Dallas.
Q What year was that?
A 1975 and '76.
Q And what was your position?
A I was a -- a student intern, student geologist, an assistant.
Q And after that?
A After that I worked for several oil companies in Midland and Abilene, Texas, including Marathon Oil Company at the beginning and -- and -- and several others.
Q Okay. What span of years was that?
A 1977 to 1990.
Q What was your position when you were working for these oil companies?
A I was -- I mean, it varied, but in general, I was an exploration geologist, and later I became a district geologist where I supervised others.
Q What does an exploration geologist do?
A An exploration geologist in the oil business is looking for -- to develop prospects to attempt to find accumulation of oil and gas, oil and/or gas.
Q Okay. And so how do you -- how do you go about doing that?
A Well, you -- you use subsurface information,

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the geology, and you develop prospects that use that information to suggest that oil and gas might be accumulated in traps in certain areas.
Q How do you acquire the subsurface information?
A Well, we use information that we developed by drilling. We used information developed by others in logs and -- and samples and things that other people drilled. We used seismic information.
Q Were you ever responsible for any of the drilling work that occurred for these companies?
A What do you mean by "responsible" and "drilling work"?
Q Well, you talked about collecting drilling information. Were you the one collecting the drilling information by either acting as a driller or overseeing a driller?
A Yeah, I wasn't ever a driller, but I was a geologist that collected the information on a drilling rig, and I might have directed a driller or directed others who were collecting samples or -- or whatnot, but I was in almost every case responsible for that.
Q Okay. So that would mean being out in the field and collecting samples and logging information. Is that right?
A Yes, ma'am.

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Q Okay. So what did you do after 1990 after you were done working with the oil companies?
A I went to that graduate program that I had previously mentioned.
Q Okay.
A And from there I went to work for the MSW Group that was at that time -- excuse me -- at that time housed in the Department of Health, and later that program was transferred to the Texas Water Commission, and I worked for them for -- for a brief few months before I left them.
Q So what span of years were you working in the MSW department -- MSW section for the Department of Health and the Water Commission?
A There was about a two-year period, 1990 to 1992.
Q What was your position or your role there?
A I was a Geologist IV, and my role was to review permit applications for solid waste permits.
Q So when you were reviewing applications for solid waste permits, were you focusing only on the geology aspects as Geologist IV?
A Primarily.
Q And what type of information were you looking for?

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A The types of information required by the rules, which were boring logs and -- and interpretations and regional information, maps, cross-sections, those kinds of things.
Q So you -- were you primarily looking at the permit applications to ensure that the information required by the rules was included in the application materials?
A Well, that was one aspect of it.
Q What was another aspect?
A Another aspect of it was to understand what it was that was being submitted and to provide comments on -- on such things.
Q Okay. Did you ever attempt to verify the information that was submitted?
A There were times that I did. I mean, there were certain times that I think I did. I don't know that that was a part of what we did always, but --
Q And how would you do so?
A Well, that's kind of a broad question.
Q If you can think of a specific example that would help you explain that to me, that -- that would work.
A There -- there was one time on a project where I was unclear as to -- for instance, the oil and gas

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wells that were on a site, and so I pulled Railroad Commission information -- a Railroad Commission map to look at that.
Q Okay. So you would basically verify information when necessary by looking at other public records. Is that fair?
A Yes.
Q Okay. If you had to estimate how many solid waste applications you reviewed in that two-year period that you were working for the state, how many do you think -- just an estimate, how many do you think you reviewed?
A Between 10 and 20, and that is an estimate.
Q Okay. I won't hold you to it.
For those 10 to 20 applications, do you recall whether any of those went to a hearing?
A Yes.
Q So you recall roughly how many?
A I remember four of them off the top of my head. There may have been more, but I remember four.
Q Did you have to testify at those hearings?
A Generally not, but I testified once.
Q In support of a -- an application that you worked on -- I mean, that you reviewed? I'm sorry.
A It was to answer questions that the attorney

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for the applicant wanted to ask me. It wasn't in support or against.
Q Okay. Do you happen to remember what landfill that was?
A Austin Community.
Q Did you testify at a hearing or at a deposition?
A I testified at a hearing.
Q Okay. Is that the only one? Is that the only landfill case that you recall having to testify on?
A I testified in a deposition on another one.
Q Okay. Which one was that?
A It was Cougar Landfill in Houston. It was a Type IV.
Q Was that landfill permit issued?
A Yes.
Q And the Austin Community Landfill permit was granted, wasn't it?
A Yes, I believe it was.
Q So when you were working for the state agencies, the Department of Health and the Texas Water Commission, do you recall having to testify on any other types of cases?
A Not that I remember.
Q Okay. Did you ever work on drafting any rules?

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A I did.
Q Okay. What -- do you recall what it was that you worked on, what specific section of the rules?
A Yeah, it was the -- the rules that helped define subsurface characterization and -- and I worked on rules that were -- they were actually approved, published and approved at one point and then withdrawn later by the -- by the -- I guess by the Commission. I don't remember if it was the Commission or the Health Department. But -- and then I worked on a committee that helped draft the rules for Subtitle D, but I was not there when those rules were finalized.
Q Were you there when the work was being done to draft them?
A In part.
Q So you worked on rules defining subsurface -- surface characterization that were approved and then withdrawn. Could you elaborate on that? What -- what happened there?
A You know, I don't think I know specifically what happened, but I think, if I recall correctly, there was a -- these rules had been worked on for -- for maybe a number of years. I had worked on them for more than a year, and others had worked on them for quite a while, and it began to coincide with the time that Subtitle D

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was happening, and I think the regulated community was in an uproar that there were rules being passed that were -- that were going to happen right on the precipice of Subtitle D happening. And I -- if -- if I read the tea leaves right, that's what happened. They withdrew the rules based on that -- on that issue.
Q Okay.
A And I -- I was never provided with clarity on any of that.
Q Okay. So the rules that you worked on regarding subsurface characterization, were they substantially different from what was in existence at the time?
A I guess that would depend on what you mean by "substantially."
Q Well, I guess the reason I'm asking is because if -- if things transpired as you suspect, you know, the regulated community was worried about one set of rules and then another set of rules coming on down the road, I would think that there must have been some -- some substantial changes with the first set of proposed rules to cause that kind of heartburn, and so I wondering if you recalled if that was the case.
A You know, the -- the rules that passed were not just subsurface characterization rules. That was the

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part I worked on.
Q Okay.
A So there were other things, and I don't remember whether they were or they weren't. I think there was an impression that the agency was trying to get out in front of the rules to Subtitle D, which was not a part of our charge when we were asked to write rules.
Q Uh-huh.
A So --
Q Okay. So do you recall whether the rules that you worked on regarding subsurface characterization were substantially different from the Subtitle D rules regarding subsurface characterization?
A Again, I'm not sure what you mean by "substantially."
Q Uh-huh.
A I think the rules, as we proposed them, were somewhat different, and I think they were in the nature of trying to provide additional information, trying to provide additional clarity, and I don't think I perceived that they were substantially different at the time. But I -- I guess before I submit that, I'd like to go back and look at what was -- we proposed, and I haven't seen that in 25 years. So --

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Q Okay. Let's see. So after you left the agencies, I guess that would have been '92 or so, where did you go?
A I went to a consulting company at the time. It was called Baker-Shiflett in Fort Worth, and soon after I joined them, they were acquired by a large national company ruled EMCON, E-M-C-O-N.
Q How long did you stay there?
A I was there until 1999 when EMCON was acquired by another large corporation that I didn't want to work for.
Q Okay. And were you a geologist at both Baker-Shiflett and EMCON?
A Yes.
Q And what kind of projects were you working on there?
A Almost entirely related to solid waste permitting and solid waste groundwater and groundwater monitoring.
Q Do you recall -- well, let me back up.
Did you ever have to provide testimony in support of any of the projects you worked on?
A Yes.
Q Were those landfill projects that you had to testify about?

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A Yes.
Q Could you tell me which ones, if you remember?
A Let's see. The first one I remember was Ellis County Disposal in Ellis County, Texas.
Q What year was that?
A I don't remember exactly. Maybe around 1997, something like that.
Q I think I might have worked on that.
(Laughter)
Q (BY MS. PERALES) I was at TCEQ or the TNRCC --
A Oh, yeah? Okay.
Q -- and it sounds so familiar.
Okay. So Ellis County Disposal. What -- which others?
A The Texoma Area Solid Waste Authority. Short for that is TASWA, T-A-S-W-A. That would have been in 2003, I believe.
Q So if it was in 2003, that would have been after you left EMCON. Is that right?
A Yes.
Q Okay. So where -- who were you testifying on behalf of then?
A I was -- Biggs & Mathews.
Q Okay. You were at Biggs & Mathews.
So after EMCON, is that when you went to

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Biggs & Mathews?
A Yes.
Q So you've been there since '99 or 2000?
A Since September 1999.
Q Okay. So we were on Texoma. Do you recall any others that you had to provide testimony for?
A Jacksboro, Sunset Farms. I think that's it.
Q Okay. And this would have been testimony at a hearing -- is that right -- a contested case hearing?
A Well, it included prefiled testimony and the hearing, yes.
Q Okay. Have you provided deposition testimony in cases other than the ones you've listed?
A Let's see. I deposed -- was deposed in Cougar. I was deposed in Pintail.
Q Pintail is not one I had listed yet.
A And I think that's it. Off the top of my head, I think that's all.
Q Okay. So of the landfills that you testified on, we'll start with Ellis County Disposal. Was the permit issued?
A Yes.
Q The Texoma, was the permit issued?
A Yes.
Q Jacksboro, was the permit issued?

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A Yes.
Q Sunset Farms?
A Yes.
Q And Pintail?
A Pending.
Q Right.
Okay. Have you ever provided testimony -- and I mean as a professional, not in any civil sort of suit. Have you ever provided testimony in any other type of matter besides a solid waste permitting matter as a professional?
A Not that I recall.
Q Okay. So have you ever provided any consulting services on behalf of a client who is opposing a permit application?
A Huh. I don't think so.
Q So after you left the State, have you always provided your professional consulting services on behalf of an applicant seeking a permit?
A Could I go back to that last question a minute?
Q Sure.
A Was that restricted to solid waste?
Q No.
A Okay. I provided consulting services to the city of Chicot when they were opposing some water

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disposal wells.
Q When was that?
A I don't remember. 2005, '6, somewhere in that range. And I consulted with -- I can't remember the name of the little town. I've actually consulted for my partner in Wichita Falls, Kerry Maroney, for another town, St. Jo, St. Jo, Texas -- St. Jos, Texas. They were opposing some sort of a facility, and I don't remember whether it was a land disposal or -- it wasn't just a direct solid waste permit, but we provided them with some information and that never went to any kind of a legal matter. They had negotiations with -- with their -- with the folks that were doing that and they decided not to do it anymore.
Q So the project just went away. Is that right?
A Yeah, the project literally went away, yeah.
Q Okay. And did you actually provide some professional services to the city of St. Jo?
A Yes.
Q Okay. And the consulting services that you provided to the city of Chicot, was that matter -- the water disposal wells, was that matter at TCEQ?
A No. It was the Railroad Commission.
Q Railroad Commission.
Did it go to a hearing?

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A Yes.
Q Did you provide any testimony?
A No, I -- I was asked to be at the hearing and advise the attorney who was asking questions of the applicant.
Q Okay. Do you know if the permit was issued?
A I don't have specific recollection, but I think it was.
Q Okay. Do you remember who the attorney was?
A Art Rodriguez.
Q Okay. So aside from the work that you did for the city of Chicot and the city of St. Jo, Texas, after you left the State, have you always provided professional consulting services on behalf of permit applicants?
A Or on behalf of people who thought they might want to be permit applicants.
Q Okay.
A Not everything always went -- became a permit applicant job.
Q Okay. So does that mean that a project was proposed; after some investigative work was done, it was determined that the project should not be pursued? Is that what you're talking about?
A Uh-huh.

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Q Okay. So the projects that went away that you worked on, were those decisions to not pursue the project, were they based on your work?
A I would say in part. It was -- it was things other than just the geology, but in part.
Q Okay. So you -- you provided some professional report or professional opinions that played a part in the decision not to pursue a project?
A Yes.
Q Okay. When you provided consulting services for the city of Chicot, were you working on behalf of Biggs & Mathews?
A Yes.
Q And what about for St. Jo, Texas?
A Yes.
Q Okay. Have you ever been sued for your professional work?
A No.
Q Has Biggs & Mathews ever been sued as far as you know?
A Biggs & Mathews environmental, to my knowledge, has never been sued.
Q Okay. And all of the landfill permits that we talked about that you had worked on, such as Austin Community Landfill, Cougar Landfill -- pin -- or not

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Pintail -- Sunset Farms, Jacksboro, Texoma and Ellis city (sic) disposal, are those -- have those all been constructed as far as you know?
A All of them except Jacksboro, to my knowledge.
Q Okay. And are they all in operation except for Jacksboro, to the best of your knowledge?
A Yes.
Q So after the permit was granted in -- in each of those cases, what role did you have, if any, in the landfill projects?
A What do you mean by "the landfill project"?
Q So after -- let's -- let's just pick one out of the blue. Let's say Ellis County Disposal. After the permit was granted, did you continue to play a -- a role and provide professional consulting services to the permit -- permittee?
A I don't believe I did.
Q Okay. Did you do so for any of the landfill projects that you had worked on after the permit was granted?
A Let's go back to Cougar Landfill. Cougar Landfill was then sold to another company, and several years later I was hired -- our firm, EMCON, was hired in part to do a permit amendment application on that site. But beyond that, I've not done any -- well, that's not

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true. Except for that permit amendment, the only other thing that I've done on Cougar Landfill, I believe I might have done a -- a couple of permit mods to upgrade to the current rules with TCEQ in 2006 and '7 when those rules were going on. Beyond that, I haven't done anything. We don't do groundwater monitoring and such things at Cougar.
Q Okay. So the additional work was all related to permit amendments or permit modifications?
A Uh-huh.
Q So -- so you have no role in the construction of a facility after it's permitted. Is that right?
A I guess that depends on what you mean by "constructed." I do -- I'm not involved in the construction engineering of the cells and -- and things like that.
Q Do you provide any oversight of that -- of the construction?
A No, although I was a project manager for the Texoma Area Solid Waste Authority when that facility was built, but project engineers for our company did the -- the actual direct supervision and oversight.
Q Okay. So in this particular case, and by this case I mean Application of 130 Environmental Park, LLC for a Solid Waste Permit, who is your client exactly?

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A Our client is HHNT.
Q Do you know what that stands for?
A Hodges Harbin Newberry and Tribble, I believe.
Q And what kind of business or company is that?
A They are a consulting engineering firm in Georgia, and their client is -- is the Green Group.
Q So where does 130 Environmental Park fit into the client matrix? Do you know?
A I don't know what you mean.
Q If Green Group Holdings is the client of HHNT and Biggs & Mathews is -- and HHNT is the client of Biggs & Mathews, who is doing work on behalf of 130 Environmental Park?
A Biggs & Mathews is doing the work for HHNT on behalf of 130 Environmental Park, whatever the legal entity is.
Q Okay. So Green Group Holdings and 130 Environmental Park in your mind are basically the same?
A I don't know that I could say that. I don't know that I understand all the legal workings of that.
Q Okay. I'm not asking for a legal opinion. I'm just asking whether it's your understanding that when you refer to Green Group Holdings, that work includes work on he behalf of 130 Environmental Park?
A Yes.

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Q Okay. When did you start the work, your professional work, for the application of 130 Environmental Park?
A I don't remember exactly. It might have been somewhere 2013, but I don't remember exactly.
Q Okay. So summer of 2013. Is that maybe when you were hired?
A Yeah, maybe.
Q Okay.
A I -- I don't remember.
Q Would it have been HHNT that hired you?
A Yes.
Q Okay. And how were you first introduced or how did you get -- how did HHNT first reach out to you?
A Bill Hodges called me sometime -- I don't know if it was 2009 or '10 -- and asked if we would be interested in working for a company that was going to do some landfill permitting.
Q Did you already know Bill Hodges?
A You know, I don't think I did. The name was familiar. I had heard of him and I had heard of the Tribble part of that, but I don't know that I had ever met him before.
Q How did he hear about you and Biggs & Mathews? Do you know?

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A Yeah, I asked him, and he said he talked to the -- to -- because what I told him was we could not do it if it presented a conflict of interest. And he said there won't be a conflict of interest. And I said how do you know that, and he said because it's your clients that have recommended you.
Q Oh.
A So --
(Telephonic ringing)
MR. GREEN: Sorry about that.
Q So do you know who recommended you specifically?
A No.
Q Okay. So he reached out to you -- Bill Hodges reached out to you in '09 -- or 2010 and asked if you were interested in working for a landfill permitting company in Texas. Was that your understanding?
A In Oklahoma.
Q Oh, in Oklahoma?
A Conceptually in Oklahoma.
Q And did you do work on a project in Oklahoma?
A No.
Q So what was the first project that you did for Bill Hodges or HHNT?
A Pintail.

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Q And when did that work start?
A I believe that started in late 2010. But again, I don't remember off the top of my head specifically.
Q Have you worked on any other projects with HHNT other than Pintail and 130 Environmental Park?
A We worked on another unnamed site that nothing ever happened on up in North Texas.
Q And all of these are landfill projects. Is that right?
A Yes, ma'am.
Q So is Bill Hodges your main contact with HHNT?
A Yes, he is.
Q And what -- could you generally describe the scope of the work that you have been hired to do for HHNT for these landfill projects?
A Do you mean me specifically?
Q I mean Biggs & Mathews.
A We were hired to evaluate property and prepare a permit amendment application -- I mean, a permit application to submit to TCEQ.
Q So when you say "evaluate property," were there specific sites that you were asked or tasked with evaluating and then providing an opinion about?
A No. I think -- I think HHNT unspecified to us

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went through some process of identifying multiple properties possibly that they then selected one from --
Q Okay.
A -- but that was not part of our scope.
Q Okay. So you weren't involved in the site selection process?
A No.
Q You were just tasked with evaluating the site that had been selected?
A Yes, ma'am.
Q Okay. So did you do that type of evaluation for the unnamed site in North Texas?
A We did some evaluation of that, and then I -- I don't know what happened to the project at that point.
Q And that was a Green Group Holdings site as well?
A Yes.
Q I think you testified earlier that you've never held a driller's certification or been a driller. Is that right?
A That's correct.
Q Okay. What kind of certification, if any, do drillers typically need for -- for landfill site projects?
A Well, I think there's two parts to that.

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Q Okay.
A I think just to be a driller and drill borings doesn't require any certification --
Q Okay.
A -- but to install wells requires that they be certified as a water well driller. I think that's correct. I've never been a driller, so I --
Q Is it necessary to have a professional geologist oversee a drilling or a boring operation?
A No.
Q Is it necessary to have a professional geologist oversee the installation of water -- of wells or piezometers, for instance?
A No. But as I suggested, they have to be licensed as water well drillers.
Q Okay. In your role with Biggs & Mathews in preparing the permit applications for Green Group Holdings, are you responsible for overseeing a boring -- boring operation or drilling of borings?
A What -- what do you mean by "overseeing"?
Q Well, I believe I read somewhere in the application materials that you were responsible for the -- the drilling of the borings, or maybe not specifically the drilling, but the -- the boring plan and the boring information.

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A Yes, I was.
Q So what does that mean? Does that mean that you were out there in the field when the borings were being drilled?
A It means I was there sometimes when the borings were drilled, but it generally means that I laid out the boring plan and the depths of the borings and directed the logger, in this case it was a geologist, but directed the logger in the field to -- to drill to certain depths and to collect the samples. And in conjunction with my engineer partner Gregg Adams, we -- we both worked on -- on having that done.
Q Okay. And you said that in this case it was -- I think you said it was a geologist in this case who was --
A Uh-huh.
Q -- who was drilling the borings?
A Yes, ma'am.
Q Who was that?
A Stefan Stamoulis, S-T-A-M-O-U-L-I-S.
Q And so what did Stefan Stamoulis do specifically with regard to the drilling of the borings and collecting samples?
A He collected -- he collected samples, marked samples, preserved the samples, described the samples in

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field logs and provided that -- all that information to us.
Q Who is "us"?
A Biggs & Mathews.
Q Would it have been provided specifically to you?
A To me and Gregg Adams.
Q Okay. So if I were to use the term "fieldwork" in relation to a solid waste permitting project and in particular with regard to subsurface characterization, what does that term mean to you? Does it include drilling?
A Well, it includes having borings drilled and piezometers installed.
Q Does it include sampling?
A Yes.
Q What kind of fieldwork experience do you have?
A Well, we talked earlier about all the -- the time that I spent in the field when I worked in West Texas in the oil business, which included collecting samples and describing core and making sample logs for thousands of feet of core and many, many multiple days and hours. Since I have been the -- in the environmental business, I have done some of that, but I've -- I've not been the primary person that does that.

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Q Okay. Do you do fieldwork now?
A I do fieldwork, but not necessarily the -- the collection of samples and the description of samples.
Q Okay. So what kind of fieldwork do you do now?
A Well, we -- we do site walkovers where we examine the site for water wells, oil and gas wells, faults, and to generally describe the -- the material that we find at the site, and that involves usually many different days at a site. It -- it can involve being there while water levels are taken or while slug tests are done in wells. And -- sorry -- the -- while we don't usually do it in the field, I often look at all the samples that we bring back to the office myself in the office and examine them. So I don't know if that counts as fieldwork or not, but it's --
Q Me neither. I don't know.
When you worked for the state agencies, Department of Health and Texas Water Commission, did you do any fieldwork then?
A I did some, but not drilling. On a couple of sites, we split samples with a -- with an operator while we were in a permit action. On one site I -- it was a training exercise, but I went out while the State was doing an electrical resistivity survey in Houston, and I worked with the guy that did that for the -- for the

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health department so that he could teach us and train me what a resistivity survey did.
Q After you left the state, did you do any other fieldwork besides what you've talked about in term -- so besides site walkovers, observing wells, faults, observing slug tests and water levels, have you done any other types of fieldwork after you left the agencies?
A I have been, especially early on in that time with EMCON, I went out to the field and either logged or participated in logging of multiple borings and observed that with Ellis County Disposal, for instance, and other sites, but that was one.
Q So you did the logging of the borings?
A I did some of that and participated in it.
Q Okay.
A And when I say "participate," what I mean is we might have had a young geologist out there logging, and I was pulling samples and helping him describe the samples. He might have been doing the actual wrapping of the samples, but I was teaching him how to describe them.
Q Okay. So if I were to use the term "field notes," what does that term mean to you?
A Well, it can mean a lot of things. Sometimes people take notes when they are -- when they are out in

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the field to record thoughts or observations that they made.
Q Sometimes -- have you seen field notes that sometimes look like journal entries with specific hours of the day and what exactly transpired and who was on site observing? Have you seen that type of --
A I've seen those type.
Q Okay. By whom are field notes generally taken?
A Huh. I guess anybody that does fieldwork.
Q Okay. So typically field notes are -- are personal observations or recordings of personal observations. Is that right?
A I guess I would be reluctant to characterize people and their field notes.
Q Okay. What about logs, field logs -- or what you described as logging of borings? How -- what is the procedure for that?
A I'm not sure what you mean by "procedure."
Q Well, you -- let's -- let's focus on the Ellis County Disposal facility where you were working with a -- a younger geologist, I suppose.
A Uh-huh.
Q Can you describe what exactly you were doing as you were sampling?
A Well, as you -- as you pull a sample from a

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specified depth, you lay it out and describe it as to the lithology of it and characteristics of it, and then you wrap it to preserve it and mark it as a sample number and the depth from which it came and record it on some sort of a log form.
Q And this is all done out in the field. Is that right?
A The wrapping and the marking and the collection of it is done in the field. Quite frequently people describe in the field, but you can also describe in other places, too --
Q Okay.
A -- as I earlier said.
Q In the office when the samples are brought back?
A Yeah.
Q So I think you've answered this, but I want to be clear. You were -- is it right that you were not involved in the selection of the site for the 130 Environmental Park landfill project?
A I was not.
Q Were you involved in the selection of the site for Pintail?
A I -- well, that depends on what you mean by "the selection of the site." I was not involved in

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selecting the site whatsoever. At Pintail we actually went out and drilled some preliminary borings and made a little report, gave it to -- that we gave to our client, and I don't know how they used that to select their site. We -- we were not involved in that -- in that decision tree.

Q And the preliminary borings that were taken, those were on the -- the site that is currently being considered for a landfill permit. Is that right? I mean, it wasn't on some other site that you --

A At Pintail?

Q Uh-huh.

A Yes, ma'am.

Q Did you drill any preliminary borings in this case for 130 Environmental Park?

A No.

Q Were you ever asked by HHNT to provide an opinion on whether the proposed site for 130 Environmental Park was suitable for a landfill?

A I don't remember that I was ever asked that question. It's possible, but I don't remember so.

Q So by the time you were tasked with your responsibilities for this project, was the site already selected?

A I guess I don't know that totally, but I -- I

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believe that was true, but I don't know that I know all the dates and when they made decisions and things. So --

Q Okay. So what -- can you describe for me what your responsibility is exactly for the 130 Environmental Park project?

A Yes, I was responsible for the development of the geologic and hydrogeologic information for the permit amend -- for the permit application.

Q So if I refer to development of geologic and hydrogeologic information for a permit application as subsurface characterization or investigation for short, will that work for you?

A Well, I guess that depends on where you're going with that because there are other aspects of it, but --

Q Okay. When there are -- if I ask you a question that starts to get into other aspects of it, you can clarify in your answer --

A Okay.

Q -- when -- when necessary.

So can you walk me through the steps very generally like an outline that you have to undertake for a subsurface characterization?

A You know, I think that's laid out pretty

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clearly in the -- in the application that -- that is built to respond to the rules, which is to collect regional information to give some sort of a setting, then to collect site-specific information such as drilling of borings and identification of the slopes and the other things, and then identification of water wells and oil and gas wells and seismic and fault information, and then -- and then the synthesis of everything that goes into a permit application such as geologic cross-sections and the -- and the logs and the -- and the maps and the other information required by the rules.

Q So at what point in these steps that you have laid out do you need to go on the site? Is that a first step?

A It's generally a first step. Generally I go out and visit a site before we do much of anything else on it.

Q Is that what you did in this case?

A I believe it was.

Q Okay. And when you go on the site as a first step, what is it that you're looking for? What is it that you do?

A I think it's primarily to get familiar with the surroundings, get familiar with the -- with the -- the

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roads and the creeks and the hills and the -- just to get the geography set in your mind. You know, as a geologist, I'm always looking at what's on the surface, the material that's there, although that's not always -- tells much of anything about what's below there, but -- so --

Q Do you recall what some of your initial observations were when you first visited the site for this 130 Environmental Park project?

A I think that the primary thing that I came away from that first visit at the site was when I met the guy that owns the site, Mr. Hunter, and I asked him if he had any water wells, and he pretty much called me a damn fool.

(Laughter)

Q (BY MS. PERALES) Okay. Anything else you recall? Any other observations or -- or stories from the owners?

A Nothing specific. I don't remember.

Q Did you ask Mr. Hunter any other questions about historical use of the site or current use of the site?

A I don't think I did. Others may have. I don't -- I don't remember. I don't remember hearing anything else other than -- well, the context of his

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water well comment to me was that he started farming the land with his father-in-law and he -- they were talking about what they were growing to grow, and he said why don't we just put water wells in, and his father-in-law called him a damn fool. So it was that context --

Q Okay.

A -- not that I was called a fool.

(Laughter)

Q (BY MS. PERALES) Okay. Do you recall anything about the -- the roads leading up to the site?

A I remember we were on a road.

Q Okay.

A Do you have specifically?

Q I'm just digging for any observations that you might have made.

A I -- I don't think so.

Q Any observations about the surface materials that you recall?

A Things that were confirmed for me later was that I noticed that there was a lot of dark gray and also brown clay and cobbles and pebbles in parts of the surface of the site.

Q Anything about the topography that struck you?

A Only that we were -- where we were looking was on the top of a rise or top of a hill and that it sloped

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off to the south, east and west of us.

Q So after your site visit then, is that when you start working on the first step that you mentioned, which is collecting regional information about the -- about the site, about the geology?

A Yes.

Q And so what did you do -- do specifically to collect this regional information?

A Well, we looked at the -- first at the geologic map, the state's geologic map, their atlas sheet, and then we began to do our normal search where we look for geologic references for the -- for that area.

Q When you looked at the state geologic map and -- or the atlas sheet, do you recall what information you gleaned from that about the geology of the site?

A That we were primarily on the outcrop of the midway and that over on parts of this site there was -- it was mapped as Leona Formation.

Q Did you look at any other literature or reference documents in preparing the regional information?

A Yeah, pretty much all the ones that are in the application.

Q Okay.

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A There were many.

Q So I recall in the application it said that you consulted with the -- I think I recall that it said groundwater district. Did you consult with the Plum Creek Conservation District to collect information?

A I think that we contacted them about water wells that they might or might not be familiar with.

Q Okay.

A And later I had a meeting with -- with some folks there.

Q So when you -- when you discovered from the literature that this site was mapped as Leona, what at that time did you know about the Leona?

A Well, I knew two or three things. I knew the -- that there was a large groundwater deposit that was the primary place for the Leona Aquifer that runs through and south and east and west of Lockhart. But by that point I had -- had come to understand that while this may be Leona, it's not Leona Aquifer since there's not an aquifer here.

Q How did you come to understand that?

A Well, I came to understand that as we -- as we did our drilling and began to understand what the extent of it was and that there was no groundwater there, or very little groundwater, and none of it in what you

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might have called Leona, but I also began to understand that the moment that Mr. Hunter called me a fool for talking about water wells on his site.

Q Okay. So I'm -- I'm trying to stick to a step-by-step process so that I can understand it. So at this point, you haven't collected the site-specific information, borings or anything like that. So other than what you've heard from Mr. Hunter about being a damn fool if you think you can have a water well on the property, what was your general understanding of the Leona, even at the site based on the literature you've looked at?

A Based on the literature I looked at, there was Leona Formation, which did not mean Leona Aquifer.

Q Okay.

A So it might have been some terraced deposits related to the Leona timeframe according to the geologic map and pretty much only according to the geologic map.

Q Okay.

A I also am familiar with Leona from a site in San Angelo that has Leona in a completely different circumstance, but it's a groundwater zone there.

Q Did you do some work in San Angelo?

A Uh-huh.

Q On a --

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A Yes, I did.
Q -- on a solid waste project?
A Yes.
Q What project was that?
A The City of San Angelo Landfill, multiple projects.
Q Did you work on a permitting application?
A Not a permit amendment application. We worked on permit mods and -- for instance, we did Subchapter J modifications and things like that at the site.
Q Okay. Which would not have resulted in a contested case hearing. Right?
A That's correct.
Q So at this point as you're collecting regional information, regional literature, are you preparing any figures or graphics or recording the information you're collecting in any way other than in narrative form for the application materials?
A Well, only -- not that I remember. Only in that we start -- immediately start collecting those regional maps to place them in -- in the permit application.
Q Uh-huh.
A So we start making our exhibits that go into the application as soon as we -- as soon as we get to

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that -- to that point.
Q Okay. And were you personally responsible for collecting the regional information and collecting the Geologic Atlas sheets and so forth?
A Yes, I was personally responsible for doing that, for looking at the maps and understanding what the information was.
Q Let's see. So once you determine that -- that there's Leona deposit on the proposed site, did that information inform your opinion about the site in one way or another?
A No.
Q Okay. So there was nothing about the presence of the Leona that suggested to you that this might be a particularly suitable site or a not-suitable site?
A No, it didn't suggest either.
Q Okay. So after you've reviewed this literature, and you talked about collecting site-specific information, is that when you work on preparing a boring plan?
A Yes.
Q And are you primarily responsible for that?
A Yes.
Q Okay. In this case, I read in the application materials I think, or maybe it was in some disclosure

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documents, that there were two sets of borings done. Initially there were a couple of initial borings, two initial borings that were done in the summer of 2013 or so, and then later the -- all of the other borings that were drilled under the soil boring plan. Am I mistaken there?
A I don't remember that.
Q Okay. So as far as you recall, there were not two preliminary borings that were drilled?
A No, I don't think I would say that. I think I'd say I don't recall one way or the other.
Q Okay. By you just don't remember that being the case?
A No.
Q Okay. So how did you determine how many borings you needed when preparing the soil boring plan?
A Well, typically we start with the state's guidelines, how many borings you need for a site of a certain size and then typically -- I don't know if I did in this case -- but typically we try to exceed that number.
Q Okay. And how do you determine the location?
A I have found it useful to develop a -- a grid system where we are generally laid out in east/west and north/south grids.

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Q How do you determine the depths?
A Well, the rules require that you drill a certain number of borings greater than 30 feet below the estimated -- or the elevation of the deepest excavation, which at the point we usually start is an estimate of what that will be. And then you adapt that based on what you find in the field.
Q So your -- when you're developing your soil boring plan and determining the depths and locations and so forth, you're relying on TCEQ rules -- is that right -- in part?
A In part.
Q Are you also relying on other professional sorts of guidance documents or reports or other literature?
A Not in any kind of specificity.
Q Okay. So, for instance, when you described using a grid system to determine locations of borings, is that just something that you developed from your own experience, or is there a document that I could look at that supports that?
A I can't reference a specific document. Certainly my experience has been influenced by other people's work and other documents and other things, but it's generally been my practice to develop a boring plan

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with a grid system.
Q Okay.
A So that -- so that we are not favoring one part of a site or another, but we're just looking over the whole site.
Q And what about the literature on the regional characteristics that you've collected at this point? Is that at all informing your soil boring plan?
A It can. In this case we knew from the regional work that we were going to be looking at several hundred feet of -- of clay materials in the midway, or we believed we were.
Q Okay. And so how did that inform your soil boring plan?
A Well, it didn't -- it didn't really change much of anything with it. I believe that we -- we started with the state's depths and we said here's the depths that we're required, and then we exceeded that by -- I believe we drilled all of them greater than 30 feet below the elevation of the deepest excavation.
Q Okay. So when did you first submit the boring plan to TCEQ approximately? Do you recall?
A No, I don't.
Q Is the soil boring plan something that you would have sealed?

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A Yes.
Q Do you recall if your soil boring plan was immediately approved?
A No, I don't recall.
Q Okay. Do you recall if you had to make a number of revisions to the soil boring plan before it was approved?
A It's always possible. I don't recall.
Q Is it common?
A Yes, depending on who reviews it.
Q Okay. Are there some geologists at TCEQ that require more revisions than others?
A Yes.
Q Who are those?
A Well, Mr. Avakian is pretty specific.
Q Do you recall if he reviewed your soil boring plan in this case?
A I think he did.
Q And so if he reviewed your soil boring plan, it's likely that you probably had to make some revisions to it before it was approved. Is that right?
A That's very possible. I don't recall.
Q Have you ever submitted a soil boring plan that was immediately approved without any revisions?
A Until changes were made at the agency, they

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used to routinely approve boring plans without any comments because the only thing that they used to review it for was the number of borings that was in the app -- in the -- in the rule for the requirement. And if you met that, then they approved no matter what else was in it.
Q Oh. And when did that change?
A I don't remember. In the -- in the late '90s, early 2000s, they began to -- to require more specificity.
Q Uh-huh.
A But I might point out I don't believe there's ever been a boring plan that we've had approved where they asked us to drill more borings, which is the primary purpose for submitting it.
Q Okay. So what kind of revisions have you been asked to make in the past?
A I'm probably not going to be able to remember very specifically, but I know that one of the things that is a little bit of a bone of contention was they began to ask us to say things about the data that were going to be collected that are required in the rules and in the manner in which they say it in the rules.
Q Uh-huh.
A And so -- so we ended up having to revise plans

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to include that kind of information or -- or that kind of specificity where we regurgitate something that's in the rules.
Q Okay. So after your boring plan is approved, that means that you can go ahead and move forward with your borings. Right?
A Well --
Q No?
A I don't know that -- I don't remember the sequence in this case, but it's not uncommon for us to evaluate property that our clients are asking to do an amendment on by starting drilling before we have any approval.
Q But that was --
A I don't remember in this case, but --
Q But that wasn't the case here. I mean, didn't you testify earlier that the only borings that you recall drilling were for purposes of this permit application?
A That's what I -- what I said was I don't recall that I did any others.
Q Uh-huh.
A But it also -- I wasn't referring to anything about a boring plan and the approval at the time. I don't remember whether we started drilling before we had

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the boring plan approval or not. We'd have to look in the application. I just don't remember.
Q Okay. But typically the borings must be drilled in accordance with the approved plan. Right?
A Yes.
Q So -- and, in fact, if you need to modify the plan at all, then you have to submit another plan detailing the modifications and await approval of those modifications before implementing them. Isn't that right?
A That's what the rule says.
Q Do you recall when you -- you, including your colleagues, first started drilling the borings?
A I do not.
MR. RYAN: Marisa, are you okay with taking a break now?
MS. PERALES: Yes, uh-huh.
MR. RYAN: Okay.
MS. PERALES: I don't have a watch with me, but let's say --
MR. HOBBS: 3:30.
VIDEOGRAPHER: It's 3:31, and we're off the record.
(Recess: 3:31 p.m. to 3:43 p.m.)
(Exhibit Snyder Nos. 2 and 3 marked)

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VIDEOGRAPHER: This is the start of Disk 2. It is 3:44, and we're back on the record.
Q (BY MS. PERALES) I'm going to hand you what's been marked as Exhibit Snyder 2.
MS. PERALES: And I apologize I don't have copies for everyone. It's -- what I can do is circulate one copy.
MR. HOBBS: You don't have (inaudible) for me?
MS. PERALES: It's -- I think it will become apparent what it is to everybody.
Will you circulate that?
Q (BY MS. PERALES) Do you recognize that document?
A Generally.
Q And what is it?
A It is a letter to Ernest Kaufmann approving our boring plan from Arten Avakian of the TCEQ.
Q Okay. And what is the date on that letter?
A October 10, 2013.
Q Does the letter indicate how many revisions or supplements were provided before it was approved?
A It looks like three.
Q Three in addition to the initial submittal?
A Yes. I think that was your question --

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right -- how many revisions?
Q Yes. I think that's right, yeah.
And let me show you what has been marked as Snyder Exhibit 3.
A Okay.
MS. PERALES: And I have one copy, but it's from the application, and I'm sure you have that information.
Q (BY MS. PERALES) So do you recognize that document?
A Yes.
Q And what is it?
A It is the Attachment E, Geology Report, from the permit application.
Q Okay. Can you turn to Page E-9?
A Okay.
Q And can you take a look at the bottom paragraph under the heading Borings?
A Yes.
Q And does that indicate when the borings were initiated and completed?
A It does.
Q And when was that?
A August and September of 2013.
Q So the borings were drilled before the boring

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plan was approved. Is that right?
A Apparently so.
Q Okay. And can -- can you go back to Exhibit 2, please?
A Okay.
Q Does that letter indicate that the soil -- the soil borings must be drilled in accordance with the soil boring plan that's been approved?
A Well, I'm not sure that I read exactly what you just said.
Q Do you want to turn to the second page?
A Okay.
Q Take a look at that top paragraph.
A Okay.
Q Does that paragraph indicate that if you want to modify the plan in any way, you must first obtain approval before implementing any modifications?
A It indicates if you want to modify the approved plan, that you would -- it doesn't say any modification.
Q Okay. So what does that mean to you?
A I don't know. I don't have a context for that.
Q Okay. So you just don't -- you don't know what that is intended to convey to you?
A In the absence of something specific, I don't know.

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Q Okay. Are you familiar with TCEQ Rule 330.63?
A **Generally.**
Q I won't ask you to cite -- recite it from memory. I think I have a copy here. It starts here.
Can you take a look at Rule 330.63, Subsection (e)(4)? You can turn the page.
A **Okay.**
Q Does that rule indicate that a boring plan shall be approved by the Executive Director prior to initiating soil boring plan work?
A **Yes, it does.**
Q Okay. So the proper course of action, according to TCEQ rules, is to first obtain approval and then proceed with the borings. Is that right?
A **That's what the rule says.**
Q And the use of the term "shall" indicates that it's a mandatory -- mandatory rule and not a suggestion. Right?
A **I guess that's what the legal definition of "shall" is.**
Q Well, it doesn't say you should do it. Isn't that right?
A **Yes.**
Q It says you shall or you must do it this way.
A **Okay.**

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Q But that's not how you proceeded in this case. Is that right?
A **That is correct.**
Q Had you seen this rule before, 330.63(e)(4)?
A **Yes.**
Q Did you understand what its requirements were?
A **Any requirement of the state is not just something that's written in their rules, but how they are implemented by the agency. And the agency has, to my knowledge, always -- or let me say that a different way. To my knowledge, the agency has never enforced that rule.**
Q So the rule doesn't necessarily mean only what's written in black and white. It's also defined by whether it's enforced?
A **No, I think it's defined by the -- how it's applied by the agency. I wasn't talking about whether it was enforced. It's how -- how does the agency apply that rule, and it's clear to me, both from my time at the agency and -- and the multiple projects since then, that that is a rule whose wording should have been changed because the -- the implication would be okay, well, we can't count any of the borings that you did before the date of the approval, so go back out and do them again. And nobody at the agency has ever suggested**

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that that should be the -- the approach.
Q Well, is it your understanding that TCEQ's policy is to review and comment on plans such as soil boring plans for which work has already been initiated and/or completed?
A **Could you repeat that again so I understood your whole question? I'm sorry.**
Q Sure. Is it your understanding of TCEQ policy that TCEQ may review and comment on plans for which work has already been initiated and/or completed?
A **As it relates to the boring plan, yes.**
Q So TCEQ, when they comment and ask for revisions to the soil boring plan that's been submitted, it's their policy that they are asking for these revisions in spite of the fact it's the -- the borings have likely already been drilled?
A **They frequently do that.**
Q Did -- did you ever talk to TCEQ in this case and let them know that you had already completed the borings?
A **I don't recall.**
Q Have you ever done that before?
A **Yes.**
Q Let them know that you've completed the borings?

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A **Yes, or that it was in progress.**
Q Okay. And why would you have done that?
A **I -- I don't recall the circumstance, but I know that I've had those conversations.**
Q So if you advised TCEQ that you were already doing the work or had already done the work, could it be because they didn't know or didn't expect it to have happened that way?
A **It's possible that they didn't know. I don't remember.**
Q And you don't recall whether you communicated to Mr. Avakian in this case that you had already completed the work when he was still reviewing and revising the plans?
A **I don't recall whether I did or not. It was certainly clear when the application was submitted.**
Q So can you explain why you would complete or -- initiate and/or complete the borings while the soil boring plan is still undergoing review?
A **I don't remember why that would have been.**
Q Would it have been you that made that decision?
A **I'm -- I don't remember specifically.**
Q Is that your typical course of action?
A **I would not call it typical. It's not unusual.**
Q Okay. Is it only with regard to soil borings

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in the soil boring plans where you decide to proceed without first obtaining approval from TCEQ?

A I didn't understand your question. I'm sorry.

Q Well, let me ask it this way: Are there any other rules relating to solid waste permitting that you interpret as suggestions rather than mandatory?

A I can't think of anything off the top of my head.

Q Are there any other rules that you -- TCEQ rules related to solid waste permitting that you typically disregard?

A I object to the characterization that we disregarded anything here because, as I suggested, the implementation of a rule is an understanding of how that rule is -- the application of the rule is -- is an indication of partly in how that rule is applied by the agency. So I -- it was not a disregarding of the rule. It was a -- an attempt to complete work for a permit application.

Q Do you typically disregard the clear expressed language contained in a TCEQ rule?

A I guess I would have -- I'd say the answer to that is no, but I'd have to know more about what rules you're referring to rather than some broad-based comment.

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Q Well, you tell me. How do you determine which rules should be followed and which ones can be disregarded?

A Since I don't believe I disregarded any, I'm not sure how you decide to disregard a rule.

Q Well, you talked about how this rule clearly states that you shall obtain approval before initiating your soil borings, and yet that's not the process you followed because, in your opinion, the expressed language in the rule is not the universe of what constitutes the rule. Is that right?

A Well, I think what I said was that the agency applies the rules in the way that the agency applies the rules.

Q Okay. And does that inform your understanding of what the rule means?

A Certainly.

Q And so does that amend what the expressed language of the rule says?

A I don't -- I don't know that I was going that far with my statement.

Q Okay. So how does the application -- how does TCEQ staff's application or enforcement of a rule change the way you would comply with it?

A Without talking about a whole world of rules and changes, this particular rule has been applied in the manner that I described it for, as far as I can remember, two decades.

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Q Okay. And that's what I'm asking. Are there other solid waste permitting rules that contain clear mandatory language that use terms lake "shall" as does this rule for which you have a different interpretation?

A Off the top of my head, I -- I can't think of one --

Q Okay.

A -- which isn't to say there aren't any.

Q Okay. Are there any written policies at Biggs & Mathews that advises you to proceed with drilling borings before obtaining approval?

A No.

Q Do you recall whether you initiated or completed the drilling of the borings in the Pintail project before the soil boring plan was approved?

A I don't remember a lot of specific details. At least some of the borings were drilled before the boring plan was approved, I think.

Q Okay. Do you recall if you initiated the drilling of the borings in the Jack County Landfill case before the soil boring plan was approved?

A I do not.

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Q Okay. So sometimes you do it and sometimes you don't?

A Yeah, I -- as I said, I think it's fairly common.

Q Okay. So is -- does that mean then that there were no special circumstances in this case that warranted drilling before -- while awaiting approval of the soil boring plan?

A I don't recall that there were any special circumstances.

Q Were you instructed to get started as soon as possible before awaiting approval?

A I'm sure that we were instructed to proceed.

Q Okay. And who would have instructed you to proceed?

A Bill Hodges.

Q If he had instructed you to proceed, would you have responded that the proper course of action is to await approval?

A I don't remember whether we had a discussion of what the rule said or not. I suspect that we did, but I don't remember that.

Q Okay. Can you return to Snyder Exhibit 3, which is in front of you. I'll take my books back and clear your space there.

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A Okay.
Q And turn to Page E-10.
A Okay.
Q And let's see, about the one, two, three four -- fifth line down starting with the word "All," can you read that sentence, please?
A "All borings were drilled in accordance with the approved soil boring plan."
Q That's not exactly a true statement, is it?
A I think it is.
Q But there was no approved soil boring plan at the time you drilled the borings.
A Which is not to say that they weren't drilled in accordance with the plan.
Q But --
A This report was written after the borings were drilled.
Q But the drilling was not done in accordance with the approved soil boring plan because the drilling occurred before there was an approved soil boring plan. Isn't that right?
A I contend that that sentence is correct. The borings were drilled in accordance with the plan.
Q The borings exist in accordance with the plan. Isn't that more accurate?

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A No, I think they were drilled in accordance with the plan.
Q That didn't exist at the time?
A That hadn't been approved at the time.
Q Okay. An approved soil boring plan did not exist at the time the borings were drilled. Correct?
A That's correct.
Q Okay. So back to the boring work. How is that work initiated? What's the first step?
A Well, typically we lay out the boring plan and then have the boring staked by a surveyor so that we know where the -- that they are staked in general accordance with the plan. And then a drilling rig is secured, and then we drill the borings.
Q When you say "we," who is drilling the borings?
A Well, they were drilled under our supervision.
Q By whom?
A By a drilling company that was subcontracted by Stefan Stamoulis.
Q So they were subcontracted by Stefan Stamoulis. So what is Stefan Stamoulis' relationship to you?
A He's a subcontractor.
Q Okay. And then who is it that he subcontracted?
A I don't recall in this case.

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Q Okay. And when you say that they were drilled under your supervision, you used a plural pronoun there. Whose supervision, you and who else?
A Well, it was generally done under my supervision --
Q Okay.
A -- but Gregg Adams also had input.
Q Okay. So how is it that you selected Stefan Stamoulis for your subcontractor?
A He is a experienced geologist who I've worked with and known for more than 20 years.
Q Okay. So you reviewed his credentials?
A Yeah, I'm familiar with his credentials.
Q Okay. Is -- is he himself a driller?
A He is a licensed water well driller.
Q Okay. How many projects has he worked for you in the past?
A Many.
Q An estimate?
A Are we talking -- what kind of project are we talking about?
Q Solid waste projects.
A I don't even know how to count that. 50.
Q Okay. And what kinds of instructions do you give him, if any?

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A Well, we -- we discuss how we're going to sample. That's a decision that's made between Gregg Adams and I and Stefan.
Q So what did you discuss with regard to sampling in this case?
A I don't recall the specifics.
Q Okay. Any other instructions you give him?
A We are pretty familiar with Stefan's work, and so the manner in which he logs and wraps and marks samples is familiar to us.
Q So are those his responsibilities, logging, marking and wrapping samples?
A Yes.
Q Do you oversee any of that work?
A Oversee all of it. What -- what do you mean by "oversee"?
Q I mean, are you at the field watching him log, mark and wrap samples?
A Sometimes.
Q In this case, how often were you out on the field watching him do his work?
A I don't recall exactly. I was at the site two or three times. Mr. Adams was at the site more than I was this time.
Q So when you went on site, what were you doing?

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A Well, I was observing what he was doing.
Q So were you there all day?
A Sometimes, not every time.
Q Is he responsible for anything other than logging, marking and wrapping samples?
A He was responsible for installing the piezometers.
Q Anything else?
A Taking water levels. Off the top of my head, that's all I can remember.
Q Okay. Who is responsible for sending samples to a lab?
A The samples are transported to a -- a lab either -- either by Stefan, or in this case Gregg Adams actually transported the samples himself.
Q Is that unusual?
A No, I -- I don't know that there's a usual process. We do it a lot of different ways.
Q Okay. So when you talk about Stefan Stamoulis logging samples, what does that look like? What exactly is he doing?
A He's writing down the depth and the sample numbers and providing some description.
Q And is he doing that as he's out there observing?

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A Yes.
Q Okay. So it's almost contemporaneous, his logging and his observations?
A I'm not sure what you mean by "contemporaneous."
Q Well, he's taking down notes or logging information as he's observing it. Is that right?
A Yes.
Q Okay. Do you know what drilling method was used to drill the borings?
A Yes, we used -- we pushed Shelby tubes and we used a rotary drilling rig and pushed Shelby tubes, and I believe split spoons when we got deeper. In some cases, we were able to push Shelby tubes, I believe in this case, all the way to the bottom.
Q Okay. Can you describe for me in detail what that is -- what pushing Shelby tubes entails? Can you give me a mental picture of what's going on there?
A I think we describe it in the application. These are thin wall tubes that you push down through relatively unconsolidated sediments and -- and it in effect is a core of that interval, and they're usually 18 inches to two feet. I don't remember what they were in this case. And then when the -- when that sample is brought out of the tube, it is extruded by pushing the

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sample out of the tube.
Q Okay. And then you push it out of the tube and then what?
A Then they describe it, and then they wrap it and mark it, wrap it and label it.
Q Could you describe -- I'm sorry. Go ahead.
A After they describe it, they wrap the sample to preserve it and then mark the sample number and depth on each -- on each sample.
Q And when they describe it, where are they describing it?
A On a field boring log.
Q So after it's wrapped to preserve it, then what happens to it?
A Then it's placed in a box and the boxes are accumulated and they're transported to us or to a lab.
Q What about split spoons? How is -- how is that done?
A Split spoons are also a thin wall tube, and that's a standard geotechnical -- it's known as a standard penetration test that they pound a certain number of blows and then mark how far they got in the -- in the -- in that number of blows -- I mean in the number of pounds.
Q Uh-huh. Okay. When you use split spoons, do

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you -- do you end up with a similar sample as when you use the Shelby tubes?
A No. A Shelby tube sample is typically, but not always, but typically a larger diameter sample. A split spoon is a -- a smaller diameter sample.
Q And then is it logged, marked and wrapped as well?
A Yes.
Q Do you recall how many drilling rigs were out in the field to drill the borings?
A I don't -- it's possible that there might have been two drilling rigs out there when we were doing the -- the borings, but I don't remember that specifically.
Q If there are two drilling rigs, does that mean you need two Stefan Stamoulises to oversee with drilling?
A Well, Stefan has other people that are loggers, and they -- they collect samples for him. He has four-wheel equipment that he goes back and forth between them. So what they'll do is they'll lay a sample out, and then he'll go and confirm the -- the description of it, and then -- and then they'll wrap it and mark it.
Q So even if there were two drilling rigs, he would still be the one that's observing the samples,

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logging them, marking and wrapping them?
A **Yes. Although as I said, he has helpers that help that that are loggers also.**
Q Okay.
A **They're not a geologist, but they're also loggers.**
Q So it's not only Stefan Stamoulis who might have been logging the samples?
A **Under his direction. Nothing was written down that he didn't say I agree with that.**
Q Okay. Well, in that case, maybe my first understanding was correct. So he is actually looking at all of the samples. Even if they are two drilling rigs, he's going and looking and observing and either logging or reviewing the logging of the samples. Is that right?
A **I think that sentence was correct, yes.**
Q Okay. Do you know how long it took to drill all of the borings?
A **I do not.**
Q Okay. Do you or Adams customarily maintain any field notes when you go on site?
A **I don't know about Gregg. I don't.**
Q You don't.
Okay. So were all drilling operations supervised by you?

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A **They were all done under my direction.**
Q Were they supervised by you?
A **I don't -- what does that mean exactly?**
Q I don't know. You tell me.
A **Well, they were done under my direction.**
Q Okay.
A **So I guess I -- I guess I did supervise them.**
Q Okay. Well, what does that mean? What does it mean when you say you supervised them?
(Telephonic ringing)
A **Well, that means that I reviewed the data, that I communicated with the -- with the field guys every day and directed them as to which borings were next and how deep to go and how -- where to stop and -- and had a general understanding of every day's piece of work.**
Q (BY MS. PERALES) So can you take a look at Exhibit 3, which is right in front of you, on that Page E-10 that you have there?
A **Uh-huh.**
Q And look at that top paragraph, the fourth line from the bottom where it says, "All drilling operations." Do you see that?
A **Yes.**
Q It says, "All drilling operations were supervised by John Michael Snyder." Do you see that?

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A **Yes.**
Q So supervised does -- that does not mean that you were actually observing all of the drilling operations. Isn't that right?
A **It does not mean that.**
Q Okay. And you weren't supervising out there every day. Isn't that right?
A **I was supervising every day. I wasn't supervising out there at the site every day.**
Q So how were you supervising every day?
A **There would rarely be a day where we wouldn't talk on the telephone.**
Q Okay. So you were supervising by phone?
A **Well, I think it's a combination of that, supervising by phone, it's supervising being at the site, Gregg Adams was there regularly and -- and communicated with me.**
Q Okay. So when you're on the phone, what is it that you're saying in order to make sure that you're supervising?
A **What did we do that day? How -- how deep did we go? Did you get done with this boring? Are you on to the next one?**
Q And are you taking notes as you're having these conversations?

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A **No.**
Q Okay. So rotary methods were used to drill the borings. Isn't that right?
A **Yes.**
Q And what does that mean? What are rotary methods?
A **Well, that means you have a -- a rig with a -- that rotates.**
Q Uh-huh. Okay. And is that pretty typical for you to use rotary method?
A **We use rotary method. Sometimes we use hollow stem auger methods. More frequently we do rotary methods.**
Q Are drilling fluids used for rotary drilling?
A **Sometimes they are.**
Q Do you know if drilling fluids or groundwater was used in this case?
A **You know what, it's detailed in the application. I believe that we introduced drilling fluids when we got down to a certain depth. I don't recall off the top of my head what those depths were.**
Q Okay.
A **And it typically has to do with friction. You know, we're unable to advance and keep the -- keep the equipment cool unless you have -- when you meet**

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resistance.

Q You anticipated my question. I wandered why or what it was, what circumstance required the introduction of drilling fluid.

A That's one of the circumstances.

Q Are there others?

A There are others. If you were in an unconsolidated granular circumstance where a hole won't stay open, a sand in that case, sometimes you have to have drilling mud in order to circulate to keep a -- a hole open.

Q Okay. What -- is wet rotary the same as rotary drilling with fluids?

A Yes.

Q Okay. Let's see. I think I have another document I want to share with you. I'm probably going to -- you know, I think I'm going to leave this one in here and take this out. It will just keep it cleaner.

MS. PERALES: Can you mark this, please?

(Exhibit Snyder No. 4 marked)

Q (BY MS. PERALES) Can you take a look at what's been marked as Exhibit Snyder 4 and describe what that is? Feel free to flip through the pages.

A These are boring logs and piezometer logs apparently from the application.

Q Okay.

A Copies.

MS. PERALES: Brent, if you want to take a look, here is a copy.

MR. RYAN: Oh, I've got some here. Thanks.

MS. PERALES: Okay. Anybody else? I have one copy I can share. Okay.

Q (BY MS. PERALES) Okay. So could you turn to BME-10, please?

A Okay.

Q Can you -- do you see at the bottom there where it says wet rotary?

A Yes.

Q And then in the Remarks section next to it, it says that "no water was added during drilling." Do you see that?

A Yes, ma'am.

Q Can you explain what that means?

A Yeah, this piece is just the standard piece, and that was generally how we did the -- the borings on the left side. And then each one of those was -- on each log we modified it til specifically.

Q So --

A So we didn't attempt to take off the word

"wet" --

Q Okay.

A -- if we didn't add water because we were using the same methodology. We just never needed water on that particular one.

Q So the term "wet rotary" is just a standard term that was included on all of the boring logs?

A It -- it was a standard term because that's how we were generally doing the borings.

Q Okay. So it doesn't really mean wet rotary. Is that right?

A Well, it didn't mean it on that particular boring.

Q Okay. So how were the borings drilled before introducing the fluids or the water?

A Well, they were drilled by rotating the rig and pushing tubes and -- and then pounding split spoons to sample.

Q Okay. So when the samples are being logged is -- does it -- do those logs look like what I'm looking at now in the application?

A Pretty close.

Q Tell me how they're different.

A Well, they're handwritten --

Q Okay.

A -- for one thing. They are observations made by the logger in the field and not -- and not reviewed by me or Gregg Adams as the professional, and they would not have the lab testing that was done, and they -- the logger in the field has no benefit of lab testing for classification and other things that we included as the final log.

Q Okay. You mentioned that it would include observations by the logger in the field, but not the professional information that would be provided by you.

A Uh-huh.

Q But the -- the logging is done by a professional, isn't it?

A I'm not sure what you're asking me.

Q So aren't the logs prepared by Mr. Stamoulis?

A No.

Q Who -- who prepares them?

A Gregg Adams and Mike Snyder prepared them.

Q The handwritten observations.

A Oh. He prepares the -- the handwritten ones, or whoever the logger is. In this case, it was him.

Q And "him" is Mr. Stamoulis?

A Yes.

Q Okay. And he is a professional, isn't he?

A He is although he wasn't serving as a

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professional geologist in this regard. He was serving as a logger.
Q Okay. So his role is a logger, but not as a professional geologist?
A That is correct.
Q And what kind of observations would he have included on his logs?
A He would have described the lithology very much like what you see here.
Q Okay. Can you go back to Exhibit Snyder 3?
A Okay.
Q And turn to Page E-9.
A Okay.
Q There on Page E-9 you talk about how in some cases where cobbles and pebbles were present, it was not possible to push tubes. Do you see that?
A Yes.
Q So "In those cases the material was augered through cobble and pebble intervals." Do you see that?
A Yes.
Q So what does "augered through cobble and pebble interval" mean?
A With a -- with an auger bit.
Q Does that mean samples were not taken at that interval?

A It means geotechnical samples were not taken. The sample that was being brought up by the auger were observed by the geologist --
Q What do --
A -- and described.
Q What do those samples look like?
A I'm not sure what you're asking me.
Q Well, earlier you described a -- continuous core samples, for instance, and I'm wondering what this would look like.
A When -- when he's augering through in this case, it was those top two or three feet where the cobbles and pebbles, he's augering and it's bringing those up in pieces --
Q Okay.
A -- not as an intact sample.
Q And that answers my question.
A Okay.
Q Do you -- or does someone log, mark and wrap those samples?
A Those were generally -- they were marked and labeled and generally contained in -- in bag samples.
Q And again on Page E-9, it appears that in a few borings you had a cobble/pebble interval that was up to six feet. Isn't that correct?

A Yes.
Q So did that seem unusual at all to you?
A No. Although when you're drilling with cobbles and pebbles like we saw at the surface out there, it's possible that you dragged a cobble or pebble down to that depth as you were drilling.
Q Okay. So it's possible that they weren't really --
A As deep as that.
Q Okay. I see.
Is there any way to know for sure?
A Not really.
Q Okay. Were any NC2 permeability tests done in the field?
A Were any what? I'm sorry.
Q NC2 permeability tests done in the field.
A No.
Q So what is the exact process for getting a sample to the lab?
A I think as I described earlier, those are -- the samples are marked, labeled, preserved and then boxed in core boxes and then transported to the lab, either in pickup trucks or trailers. In this case, I believe they -- that Gregg Adams transported them in his pickup truck, and he pretty much did that weekly, I

think.
Q Directly from the field?
A Uh-huh.
Q So was he -- were all of the samples taken to the lab, or was he choosing certain samples?
A I believe he was selecting samples.
Q Okay. And how -- do you know how he selected which samples should go to the lab?
A I think you have to ask him, but I think he was selecting samples that were representative.
Q What does that mean?
A That would represent -- in this case, the material is so consistent and so much the same, but -- but through an interval he was trying to select samples that were representative of the sample and say this all looks alike, this is what one of the samples is.
Q Okay. What about the pebbles and cobbles that were contained in bags? Do those go to the lab?
A Well, either to the lab or they were brought to our office.
Q Do you know?
A I think it was both.
Q Okay. So how long -- how much time passes between when the samples are collected and when they are delivered to the lab?

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A I -- in this case, I don't know. You'd have to ask Gregg.
Q Okay. And they were delivered by him. Is that right?
A Yes.
Q Okay. So it sounds like it's a pretty simple explanation here, but can you describe the chain of custody procedure?
A The chain of custody was that he brought the samples back and then assigned laboratory tests for intervals.
Q Okay. Do you know how the samples are stored in the lab?
A I don't.
Q Do you know where the samples are now?
A The samples now don't exist.
Q What happened to them?
A They were destroyed.
Q When?
A I can't answer that question.
Q By whom?
A By persons in our office who would have been unknown to me at the time. I mean, what happens is we store samples. When we're done with the samples, we're done with the samples. And the samples might sit there

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for a long time, and then somebody comes in and says, hey, I've got a project, we're out of space. Are you done with those samples? And we'll say yeah, and then -- then they get cleared out and -- and usually hauled to a landfill.
Q So -- that's ironic.
(Laughter)
Q (BY MS. PERALES) So in this case, do you recall when you were asked about whether you were done with these samples so that they could be taken away and discarded?
A I -- I don't have any specific recollection of that.
Q Okay. So back to the logs that were initially prepared by Mr. Stamoulis. And I got that right. Right? He's the one who initially prepares the logs?
A The field log.
Q Right.
A Yes.
Q Okay. All of them?
A Yes.
Q Okay. So what happens to the logs that he has prepared?
A Those logs are brought back.
Q To?

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A To our office. We assign lab tests based on those logs and -- and then we prepare the -- we begin the process of preparing the final logs and -- by describing the samples ourselves. And so that happens mostly by taking his field logs, and then we go look at the samples. In this case, Gregg looked at way more of them than I did, and he -- we mark up those logs and then we assign lab tests. And then once we get lab tests back to confirm the material, the classification, then we begin finally preparing the final log.
Q Okay. So the field logs come back to your office, and you said that you begin the process to prepare the final logs. The process to prepare the final logs is -- does that include looking at the logs and the samples and providing new descriptions?
A Yes.
Q Okay. So are there instances in which you are looking at the log that Mr. Stamoulis drafted, you're looking at the sample and you are making changes?
A Yes.
Q Is that common?
A I think it depends on the material. I think it was not as common with this material. This material was pretty consistent, but it -- but it does happen.
Q Are there other reasons that you might change

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the descriptions that were provided by Mr. Stamoulis?
A Other than what?
Q Other than just observing the sample?
A That would be the primary reason. If we look at the sample and describe it and it differs from his description, that's when we would change it.
Q Okay. Are those the only changes that would be done to the logs that were provided by Mr. Stamoulis?
A And by "the only changes," you mean?
Q Well, let me ask it another way. You received the logs by Mr. Stamoulis. Those -- that information has to be transposed ultimately to create the logs that are in the application. Right?
A Well, I'm not sure about transposed, but it has to be -- that information has to be taken in the form that -- that we describe into the final log that goes into the -- to the logging program.
Q Okay. So are you taking the information that was provided by Mr. Stamoulis and making any changes to it other than the descriptions that you've described as you create the logs that are in the application?
A The descriptions of the lithology. Is that what you were asking me?
Q Uh-huh.
A I can't think of any.

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Q So there are no other edits or revisions that are occurring to those -- to the information in Mr. Stamoulis' logs.
A That I can think of.
Q Okay. So now tell me about the process of getting Mr. Stamoulis' logs to the form that we have in the application. How does that happen?
A Well, the field log is brought back to our office or sent to our office. In this case I believe they were brought back to our office. And then the samples are examined by us, incorporate lab tests to that, change -- change descriptions that are confirmed by the lab testing. For instance, he in the field might have called something a clay, and when we lab tested it, it might have been a silty clay.
Q Okay.
A So we -- so we then make those markups and hand them to one of our admins who inputs the data to the logs, and we go through a review process of it.
Q And that's what I'm asking about. So when you are making the changes or making the markups, are you making those markups onto Mr. Stamoulis' draft?
A Typically that's how we do it.
Q Okay. And what happens to that draft that shows his initial observations with your markups?

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A Once -- once the logs are final, those drafts are destroyed.
Q So if I wanted to see what Mr. Stamoulis' initial observations were and compare them to what your observations were, I'd have no way of doing that at this point?
A I'd say that's correct.
Q And then you -- you said that you make the markups and then an admin assistant puts them into some electronic file. Is that right?
A Yes.
Q Are you -- are you supervising in any way to make sure that it's being accurately inputted into this electronic file?
A Either Gregg or I review what -- what has been put -- what the first initial output is to confirm for -- that they are consistent with what we logged.
Q So are you comparing it to the draft logs with your markups?
A Yes.
Q Okay.
A In this case, Gregg would have done that under my direction.
Q I was going to check to see who sealed the borings. So if it was your seal, then it's because you were directing Gregg -- Mr. Adams. Is that right?

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A Yes.
Q Okay.
A And, frankly, either one of us could have sealed them, but --
Q Because both of you were --
A We both --
Q -- reviewing?
A We both participated in the construction of those logs. Gregg is typically responsible the final -- responsible for the final edits, and that's largely because he's looking at the geotechnical data for classification.
Q Okay. So all of the samples that have been collected and all of the initial field logs are at this point no longer in existence. Is that right?
A To the best of my knowledge, that is true.
Q So does Biggs & Mathews have any formal quality assurance procedures?
A I'm not sure what you mean by "formal."
Q Any written quality assurance procedures?
A We don't have written procedures. However, we do -- we have a quality review program that includes checklists and such things.
Q What do those checklists include? What type of information?

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A The requirements of the regulations generally.
Q Okay. So you have a checklist that was developed by referring to the TCEQ rules to make sure that all of the information that's required is --
A Uh-huh.
Q -- addressed? Is that right?
A Well, we do at least for the geology parts. I can't speak to the other parts of the application.
Q And is -- and so that, in your mind, is what constitutes quality assurance, is making sure that all of the information that's required --
A No, I don't think that's all.
Q Okay.
A I think we -- we do a review. That -- the checklist is part of it, and in the checklist we review for other things. So --
Q Okay. Those other things, are those documented in any written policy documents?
A No.
Q Do you have a formal written retention policy, a sample retention?
A A document retention policy?
Q Let's start with a document retention policy.
A We do have a document retention policy.

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Q Okay. And what is that policy?
A **It's -- it's several things, but --**
Q Okay.
A **I thought we produced that to you, but maybe not. It includes -- our policy is to destroy drafts when we're finished developing the next stage of a project.**
Q What -- what is the purpose of that?
A **Especially in the modern day with electronics, I know that you and the TCEQ and everybody else is familiar with the problem of confusing previous forms of things. And so the -- the whole point of our document retention policy is to eliminate previous versions of things that are no longer the final form.**
Q And how do you know that I have a problem with confusing previous forms of things?
A **I -- I don't know. That sounded a little bit accusatory. I didn't mean it to be accusatory.**
Q I'm not taking it as accusatory. I'm just wondering what it is about I guess these cases that --
A **To my knowledge, everybody that I know that deals with computers and documents has issues of trying to make sure they understand what the final version was. And so that is the main purpose and always has been the main purpose of our document retention policy. We try**

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to keep documents out of our files that are not the -- the current or appropriate document because ten years from now when you go to look for that document, if that previous version still exists, you don't have any real way of knowing if that was superseded.
Q Right. Okay.
A **So that -- that's the purpose or our --**
Q Well, have you also had experience or issues where someone was interested in reviewing or verifying the initial observations?
A **Observations of?**
Q Of a sample by --
A **No, never had that.**
Q No one has ever asked you for documentation that shows what the initial observations of a sample were?
A **Except for attorneys such as yourself in cases like this, we've never professionally had that come up. And mostly because the procedures we use are approved procedures. The classifications are a classification process that's -- that's standard. And so, for instance, if this were not a new site but an old site where we -- were drilling was done 25 years ago, we can still look and use those logs even though field logs and samples don't exist.**

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Q Why is it -- do you have an opinion as to why an attorney like myself would want the logs that include the initial observations of a sample?
A **I guess I'll let you speak to that.**
Q Okay. So just to make sure I understood this correctly, when Mr. Adams delivers the samples to a lab, is that a third-party lab?
A **Yes.**
Q Okay. And he's only delivering the samples that he's identified as representative. Is that right?
A **That -- that -- well, I think we should ask Gregg what -- how he selected those.**
Q Okay.
A **Those were my words.**
Q Okay.
A **But he delivers to the lab those samples that contain the intervals that he wants lab tested with lab test assignment sheets.**
Q Well, would he have delivered like an entire core sample?
A **Might have.**
Q Okay. Do you recall if some of the core samples were taken back to the office?
A **Some of them were --**
Q Okay.

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A **-- because I looked at many of them, but most of them were taken back to our storage facility, and I looked at most of the samples there in this case.**
Q Okay. So if -- going back to the boring logs, if I wanted to look through these boring logs and determine which of the borings had the two to six feet of cobble/pebble interval, how would I find that in these boring logs?
A **I think that's that upper unit.**
Q Can you point me to an example --
A **Sure.**
Q -- of a boring log with an example?
A **Sure. Let's just go to the first one. Boring BME-1, the upper interval says clay, silty, dark brown, very stiff to hard with pebbles.**
Q Okay. And so that would be an example of a case where an auger bit was used and cobbles and pebbles were marked, labeled and contained in a bag?
A **Yes.**
Q And how would I know that from looking at the log?
A **Sample A1 stands for auger.**
Q Uh-huh. So just -- that's how I would know it was augered?
A **Uh-huh.**

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Q Okay. Now, how did you determine where and how many piezometers should be drilled?
A **The process of determining piezometers is twofold: It's, one, to get a geographic coverage of the site. And then in this case, because we began to see that we were -- we were dealing with a really dry material and not -- not much water available, we placed piezometers primarily at the interface of the weathered and unweathered material where -- where we think you would see the most likely accumulation of infiltrating groundwater. And then we also placed some deeper down into the unweathered, and we placed some shallower within the weathered.**
Q So you did have some piezometers that were placed at the interface?
A **Most of them were.**
Q Okay. And could you tell me which ones?
A **You want to know all of them?**
Q I want to know all of the piezometers that were -- that were placed in the -- at the interface of the weathered and unweathered material.
A **Okay. There's a couple ways we could do that, but I think this way might be the quickest. If you look at Table E-9, there are two piezometers, P-31 and P-14.**
Q Can you tell me what page?

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A **I'm sorry, yes, ma'am. That's in the text, E-9.**
Q Okay. So that's on Page E-17?
A **Yes, ma'am.**
Q Okay.
A **There you see that we placed them all in Stratum II and Stratum III. The piezometers that are labeled shallow were placed a little higher in the -- above the interface, and the piezometers that are labeled Stratum III were placed down into the unweathered, and all of them rest of them were at or very near the interface of the weathered/unweathered contact.**
Q Can you identify for me specifically which ones were placed at the interface of weathered/unweathered?
A **I guess we could go through each one of them one by one.**
Q Okay.
A **P-1, P-4, P-7, P-9 I believe. Let's see, let's skip to P-16, I believe. Let me double-check that. P-16, P -- P-18, P-20. Let me double-check here. P-26, P-27, P-28 and P-32.**
Q So all of the piezometers that you just listed were placed at the interface of weathered and unweathered material?

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A **At or very near it, yes.**
Q Okay. And how were the piezometer borings drilled?
A **They were augered, and they were drilled by look -- and they looked at samples as they came up to confirm the descriptions, which in this case was not very hard to do, but the description -- because the material was pretty much all the same. The descriptions matched what we were seeing in the nearby boring.**
Q Okay. And with the piezometers, were you using both wet rotary methods and air rotary methods?
A **Yes.**
Q And looking at the logs, would the logs all indicate wet rotary as the boring logs did, the standard language?
A **Yes, I think so. Yeah, I see that they do.**
Q The piezometer borings, they were not drilled on the same day as the -- what I'll call the BME borings, were they?
A **No.**
Q Okay. How were the piezometer borings logged?
A **I think I just described that, didn't I?**
Q Who -- who logged them?
A **Oh, who logged them? Stefan --**
Q Okay.

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A **-- Stamoulis, Mr. Stamoulis.**
Q Would there have been any editing of those logs when they were sent back to the office?
A **In all likelihood, those were edited to -- to match the -- the descriptions that were in our final log because he wouldn't have had the benefit of either our observations or the lab testing.**
Q So when you say they were edited to match the descriptions in the final log, are you talking about to match the descriptions in the BME boring logs or --
A **Yes.**
Q So the piezometer logs would have been edited to match the descriptions from the BME boring logs?
A **Yeah, I think that's what I said.**
Q When I say BME borings, that's not piezometers. Do you understand that?
A **Yes, ma'am.**
Q Okay. Since the BME borings and the piezometer borings were logged at different times, then why would the log descriptions be exactly the same?
A **Because when we put the piezometers in, they were done by augering, and he was logging and looking at cuttings. And so he was -- and when we put a piezometer in nearby the -- the original boring, we are just trying to confirm that those -- that the descriptions that were**

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done originally are consistent so -- so that we can know where we're placing the piezometer.

Q So is augering the same as wet rotary or air rotary?

A Well, yes, yeah.

Q It is?

A Yeah.

Q Okay.

A But aug -- when we were augering with a wet rotary, we were looking at it with a bit, a cuttings bit, as opposed to a sampling tube.

Q Okay. So you were not really collecting samples. You were collecting more of cuttings maybe?

A Like it or not, those are samples.

Q Well, I guess in my mind I -- I think of the core samples, and I'm trying to distinguish that from the -- what I would imagine looks like cuttings. Is that right?

A Yes, they were cuttings, in fact.

Q What about the elevations on the piezometer logs? Were those edited in any way?

A The piezometer logs were -- the piezometers were surveyed, but once the piezometer is there, we can't survey the ground elevation. So ground elevations were used from the original boring.

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Q Okay. So the elevations that are included in the piezometer logs really reflect the elevations of the borings?

A Yes.

Q Okay. And just to make sure I understand, if I'm looking at the log for Piezometer P-7, is -- am I correct in understanding that the sampling that was done for P-7 was wash cuttings?

A Well, the sampling that was done for the actual hole that the piezometer was done by wash cuttings. The sampling that was done in the nearby boring was done in the manner we described it.

Q Right, and I'm talking about the piezometer?

A Yes.

Q I'm looking at P-7. Wash cuttings. Right?

A Yes.

Q Okay. If I look at the very bottom of the log where it says sampling method and it says thin wall tube, that's referring to the boring, not --

A Yeah, that -- that's not correct, yeah.

Q Okay. Because that's referring to the boring, not the piezometer. Right?

A Yes.

Q Okay.

A And -- and the reason that shows like that is

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because that's where the detailed description comes from.

Q Because the detailed description in the log comes from the thin wall tube samples. Is that what you're saying?

A Uh-huh, uh-huh.

Q Not from the wash cutting samples?

A That's correct, yes.

Q Okay. So I'm sticking with the log for P-7 where -- I'm looking between the 30 and 35-foot interval, the note that says silt partings.

A Uh-huh.

Q Do you see that?

A Yes.

Q So that description is coming from the boring thin wall sample. Right?

A Yes.

Q Okay. I just want to make sure I understand.

So can you turn to Table E-10, please? And I think that will be in Snyder 3.

A Okay.

Q I'm going to try to catch up with you.

So according to Table E-10, all the piezometers were dry during sampling in 2014 and 2015 except for P-1 and P-32. Right?

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A And initially P-4.

Q Okay. So what happened to the water in -- in P-9, P-27 and P-28 which were drilled using wet rotary?

A I don't know.

Q Okay. So earlier you identified for me the piezometers that were drilled at the interface of the weathered and unweathered. And so my question to you is -- well, my understanding was that that's where you would expect to see water at the interface. Is that right?

A Yes.

Q So piezometers that are installed above or below the interface, they're not going to be very useful in determining groundwater conditions. Isn't that right?

A I disagree.

Q Okay. Tell me why.

A It describes where there is no groundwater --

Q Okay.

A -- which is useful in describing what the groundwater condition is at the site.

Q Okay. So those piezometers that were installed above or below the interface were intended to confirm that there was no groundwater?

A Yes.

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Q Okay. And in your opinion, do you think seven piezometers are adequate to determine groundwater conditions for a site that is over 520 acres?

A How did we get to seven?

Q Well, I think -- unless I miscounted, I thought that's how many were at the interface. Maybe there were more. Ten.

A Yes, I think that the -- the distribution that we had them -- first of all, the site -- the footprint is not 500 acres. It's closer to 200 acres.

Q Okay. So these piezometers were intended to determine the groundwater conditions for the 200 acres?

A For the footprint of the landfill, yes, ma'am.

Q Okay. Okay. And -- and your opinion is that that was adequate?

A Yes.

Q Okay. So Stratum II, you identified it as weathered Midway. Is that right?

A Yes.

Q And what generally does weathered mean?

A Well, indications of weathering can be a lot of different things, but it -- the very first thing that you notice is the color change of it because it can be oxidized or otherwise affected by movement of subsurface fluids at one time or another during the course of its life, and that description of weathered was my description that showed that there were very few fractures and almost most slickensides, but there was color change and blockiness.

Q So weathered means that it's affected by movement of fluids?

A At some time during the course of its history.

Q Okay. And Stratum III is unweathered. Right?

A Yes.

Q And what does unweathered mean?

A Unweathered means it has been largely unaffected by a near surface weathering.

Q Okay. And when you say "unaffected," what are the results of it being unaffected?

A Well --

Q What observations would you make?

A It's more dense. It's not blocky. It is frequently dark and hard -- dark gray and hard, and you don't see any -- any color change that are the result of oxidation or blockiness that was a function of drying out and shrinking and swelling.

Q Okay. So would it be accurate for me to describe unweathered clay as denser than weathered?

A I'm not sure. Maybe.

Q Okay. I thought I heard you say that. I wrote it down.

Is there a reason that unweathered clay would not be denser than weathered?

A I mean, usually it would be more dense because it has not been subject to the shrink and swell, which created the blockiness.

Q Okay.

A But I think what I meant to say, if I didn't, was that it was hard.

Q Uh-huh.

A So maybe that's equivalent to dense, but --

Q Okay. Would you expect -- would you expect unweathered clay to have a higher unit dry weight than weathered clay?

A I don't have an opinion about that. You'd have to talk to Gregg about that.

Q Okay. Would I also need to talk to Gregg about the permeability of the clays?

A Probably so. Gregg did the -- had the permeability test done.

Q Okay. Was there any peer review of the work that you did for this application?

A And by "peer review," you mean what?

Q Well, you tell me. What does a peer review generally mean?

A Well, in this case, it was work that was done by me, was reviewed by Gregg, and work that was done by him, was reviewed by -- I think I said it that way the first time. We reviewed each other's work.

Q Okay. So --

A And in addition to that, the work was reviewed by Bill Hodges. I'm not aware that -- oh, oh, no, there was. H.C. Clark reviewed -- peer reviewed this work.

Q Okay. And what -- do you know what the scope of that peer review by Dr. Clark was?

A Only that he generally -- generally he took our application and reviewed it and sat down with me and we talked about the application.

Q Did he provide you with any written comments?

A Boy, not to my recollection.

Q Was he provided with any draft field logs or samples to observe?

A I'm sure not.

Q Okay. Do you recall revising any of the work that you had done based on Dr. Clark's comments?

A I don't -- I don't think there were any -- anything major. There may have been minor editorial comments, but I -- I'm sure there was nothing major, but I can't preclude that we might -- we might have addressed some of his minor comments because he usually

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would make minor comments, but --
Q And so would he have been reviewing the finished or close to finished product that you developed?
A Yeah, but I don't remember -- off the top of my head, I don't remember when he did. So I don't remember if he was looking at the initial submittal or one of the revised submittals. It was probably the initial submittal before the first comments from the State.
Q Okay.
A But I -- but I don't remember specifically.
Q And he wasn't involved in -- in preparing the application materials. Is that right?
A He was not.
Q Okay. So did you conduct the investigation for faults on the site?
A I did.
Q Okay. And how did you do that?
A Well, I reviewed -- I mean, I think the application says it, but I reviewed aerial photographs and I reviewed geologic maps and I did a -- multiple site walkovers and drove up and down roads in the area.
Q So what were you looking for when you were, for instance -- for instance, driving up and down the roads?
A Looking for evidence that there might have been

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any recent movement in faults.
Q What would that look like?
A Well, for instance, you might have a -- a road -- if you drive around Houston, you can find places where a fault has -- has tweaked a road and you have a drop of a foot or two or three in places.
Q So a drop in the road?
A Or a rise if you were going in the other direction.
Q And you didn't observe that here?
A I observed nothing to indicate that there was any recent faulting.
Q Well, which roads did you drive when you were looking for evidence of faulting?
A Well, I drove on the site roads. I drove on the paved roads. I've forgotten the number, but the one that's on the south side of the site that goes northeast. And then I drove on the road that goes north of the site, goes east/west north of the site, and I -- and obviously I've driven on 130 itself or the access roads to it.
Q Okay. And you noticed no drop or rise in those roads. Is that right?
A I -- I didn't notice any evidence of anything that I would think was a recent movement of a fault.

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Q Okay. What geologic maps did you review?
A I reviewed both the Geologic Atlas sheet, and I reviewed the larger scale state geologic map, and I reviewed the seismic maps.
Q And that being --
A Or tectonic map. Excuse me, I'm sorry.
Q Okay.
A Tectonic map, not seismic map.
Q And nothing in those maps or in the atlas sheet indicated to you that there were faults in this area?
A There are faults in the area, but not recent faults.
Q Okay.
A I mean, if you look on the geologic map, you can see faults that -- that affected older sediments, but not recent faults.
Q Okay. And the faults that affected older sediments, is that significant to you in any way?
A Well, certainly you -- you consider locations of older faults because in some parts of the state older faults will be the locations of a fault that comes all the way to the surface. In this area of the state, it's generally not.
Q Okay.
A So a fault that's mapped in the Midway or some

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other geologic formation that's deeper may be deeper seeded but hasn't moved on the surface in recent times.
Q So it's not really relevant to the geologic characterization or the materials that you're preparing for this project?
A Well, it's -- the relevancy of recent faulting has to do with the site -- the location restrictions as defined by Subtitle D, and wherein if you are in an area where faults have moved in recent times, you have to demonstrate that your -- that your facility is designed to withstand those recent movements.
Q And what I'm trying to understand is, is that the only -- is that the only rule or is that the only piece of information you're trying to acquire when you're looking for faults is whether you have a fault that prohibits the site?
A It's the primary one, but I think it also, when you're looking at the geology and trying to understand the geology of something, you can see where the faults are and what's juxtaposed in a position with each other, so it's part of the geologic understanding.
Q Okay. So when you did the site walkover, what is it that you were looking for to provide you some indication of whether faults exist?
A We looked for any evidence that there has been

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movement in recent times.
Q So what would that look like?
A Well, it might look like a -- a fault scarp where something has dropped. For instance, I've identified a fault scarp in Wyoming once where a recent fault dropped five feet or the other side raised five feet. It was evident by the fault scarp. Sometimes you have ponds or stream courses that are affected by -- by recent movements, but they can also be affected by old faults that haven't moved, too. So it's those kinds of things we were looking for.
Q And you didn't see anything like that?
A I saw nothing to indicate that there was any recent movements in any faults.
Q Okay. Did you -- did you conduct the water well data investigation yourself?
A I did. I directed searches for that data to be done in databases. Most of that is done by my administrative assistant, Gwen Archer. She did that and then we reviewed all that information. I did multiple drive-arounds looking for water wells that are not on those databases because sometimes they occur. I don't remember, but I don't think we ever found any that we didn't think were already part of the database.
Q So were you supervising Gwen Archer when she

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was collecting the data regarding water wells?
A Yes, ma'am.
Q Okay. And how were you supervising her?
A Well, I sat down and said, okay, here are the databases we want to check. So she would pull up the databases, and quite frequently I would look over her shoulder. Anymore we pull up and look at it on the computer and say, okay, that's -- that's the area we're talking about. Here is where the water wells are. And then she would -- she would print and collate that data for my report.
Q Okay. Did you do any investigation for oil -- oil and gas wells?
A Yes.
Q Okay. And how did you do that?
A The same way.
Q So someone collected the data under your supervision?
A Yes, Gwen searched the Railroad Commission locations.
Q Did you do any drive-by surveillance for oil and gas wells like you did for water wells?
A You know, when we're out there looking, we look for that. But if there's not a -- a producing pump jack or wellhead or something like that that are -- those are

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plainly obvious.
Q Uh-huh.
A But if there's -- if there's an old plugged well, you wouldn't see that from the surface. The Railroad Commission has always been -- not always -- for a long time, the Railroad Commission has been more exacting about locating their -- those wells. They had to have a permit with a location. When they were plugged, they had to file a plugging report. And that was not always true with water wells. In fact, probably not even completely true of that today with water wells. So, yes, I did look, but I didn't see anything, and, frankly, I didn't expect to see anything in the oil and gas well arena.
Q Okay. Did you have any role in determining what the excavation for the proposed landfill would be?
A I was probably in meetings where that was discussed, but I didn't have any role in that.
Q Okay. Who -- who would have had that decision-making authority?
A That's a -- that is a Gregg Adams, Kenneth Welch, Bill Hodges discussion. Well -- and not Kenneth Welch later. It was -- when that was determined, it would have been Kerry Marone.
Q Okay. So is Kenneth Welch, is he an engineer?

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Is that right?
A Yes.
Q And Bill Hodges, what's his qualifications?
A He's an engineer.
Q Is he -- you said he's not in Texas. Is that right?
A That's correct, yeah.
Q So -- and then you mentioned that Kenneth Welch was replaced by Kerry Marone. Is that right?
A Uh-huh.
Q Okay. When did that happen?
A I don't recall the specifics. Sometime -- sometime in the fall, I guess, of 2013 maybe. I don't -- I don't really remember.
Q In the fall of 2013, would the decision have already been made about the excavation of the proposed landfill?
A I don't remember.
Q Do you recall when the initial application materials were submitted to the TCEQ? Would it have been August 2013?
A I don't remember.
Q Okay. But Kerry Marone would have been the person who would have had the role in deciding about the excavation?

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A Kerry and Gregg and Bill would. The discussion would have been amongst those three.
Q Okay. Do you know why Kenneth Welch was replaced by Kerry Marone?
A It -- it was an issue of his time commitments and he was engineer of record on several permit applications at the time, and it was determined that it was going to be a conflict to continue on in that role.
Q Okay. Have you done any type of soil balance for the proposed landfill project?
A I haven't. That might be a Gregg Adams question.
Q Okay. Are you familiar with the proposed excavation depth for this landfill?
A Only generally. I don't remember any of it off the top of my head.
Q Do you recall whether it seemed somewhat shallow to you?
A I have no -- no recollection of an opinion like that.
Q Okay. Do you know whether Green Group Holdings or 130 Environmental Park will need to construct a site access road to this site?
A I think there's a site access road in the permit application, but I only know that generally.

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That was not one of -- my responsibility.
Q Okay. So you would not have had any role in determining whether adequate soils or clays exist for road construction?
A None whatsoever.
Q Would that be a Gregg Adams question?
A Uh-huh.
Q Okay. I want to go back to the sample and document retention policy. Starting with the document retention policy, how long has that policy existed?
A In one form or another for pretty much as long as we've been Biggs & Mathews Environmental, so since maybe 2000.
Q Okay. Is that also true of the retention policy for samples?
A We -- we don't really have a retention policy for samples. We just have no use for the samples after we're done with them, and they -- they don't stay well, and so we -- we just -- and they take up space. So we get rid of them when we're finished with them.
Q Okay. Do you ever consider whether others might have some use for those samples?
A The use for the samples would be -- in our part determined whether our client had any use for the samples.

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Q Okay. And what I'm asking is whether you've considered whether others might have any?
A Others such as who?
Q Such as protesting parties or consultants hired by protesting parties who want to verify the information included in the application materials.
A I -- I haven't -- I haven't given that a thought other than I know that sometimes they're interested.
Q Okay. Did you know or suspect that this particular landfill project, 130 Environmental Park, would ultimately be protested and end up in a contested case hearing?
A Well, I received a letter from you that said it was.
Q Okay. But before that letter, did you suspect that it would -- it could end up in a contested case hearing?
A I never think that they're going to end up in a contested case hearing until they do because most of them don't. So in our experience, there are an awful lot of them that sound like they're going to go to a hearing, and then they never do.
Q Okay.
A So our experience is that until we know that

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there's going to be a hearing and they've determined that and parties, we don't think there's a hearing.
Q So you work on the assumption that there's going to be no contested case hearing or protest of a particular landfill project that you're working on?
A I'm not sure that I would agree with how -- how you ended up formulating that.
Q Okay.
A We -- we do an application pretty much the same whether we think it's going to be in a hearing or not in a hearing.
Q I understand that, but what I'm asking is, is it your assumption that the project you're working on is not going to be protested in a contested case hearing?
A Based on the history and the statistics we -- that is probably -- that's what I think.
Q But isn't it true that it's not at all unusual for a landfill -- new landfill projects to end up in a contested case hearing?
A It's not unusual and it's not unheard of.
Q And, in fact, you and I have now been involved in -- this is number three, isn't it? Jack County, Pintail and this one.
A Oh, count Pintail. Yeah, that's true.
Q And in Jack County -- in the Jack County case,

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do you recall me asking you about whether you had retained your field notes, draft logs or core samples?

A You know, I don't have a specific recollection of that, but I -- I wouldn't be surprised if you said that.

Q Okay. And that issue came up again in the Pintail Landfill project, didn't it?

A Yes.

Q And in both cases, you had discarded -- you or Biggs & Mathews had discarded the materials that we were seeking. Is that right?

A Yes.

Q So when you're hired to work on a landfill application like this, isn't it fair to say that you are also being hired to defend your work in a contested case hearing if one arises?

A Yes, I would say probably we would -- we would assume that we might have to do that.

Q And -- and there's at least a chance that you will be involved in a contested case hearing where you're asked -- be asked to defend your work. Isn't that right?

A Yes.

Q So when you're hired to work on a project like this, you're not only being hired for your technical

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expertise in putting the application materials together, but you're also being hired to defend those opinions in -- in a litigation process. Right?

A Yes.

Q And so by now you've participated in a few of these contested case hearings. Right?

A Yes.

Q And you've participated in the discovery process. Correct?

A We have.

Q And you've had to provide to your attorney materials, documents, tangible things, models, reports, data compilations that were provided to you, reviewed by you or prepared by or for you in anticipation of testimony. Have you been asked to do that in the past?

A Yes.

Q Have you been asked to do that in this case?

A Yes.

Q So you know that that request is coming because it's part of the discovery process in a contested case hearing. Right?

A If you're going to be in a contested case hearing, that's part of the process.

Q Right. Is it your understanding that in this case Parts I and II of the application were submitted to

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the TCEQ in an effort to get something in quickly in case the county was considering passing a landfill siting ordinance?

A I -- I don't have any -- any -- I don't think I have any knowledge and I certainly don't have any recollection of what the sequencing of all that was for.

Q Okay.

A I wasn't part of that --

Q Okay.

A -- other than contributing my parts of whatever went into those submittals, but I -- I wasn't a part of the management of any of that. So --

Q So you never had any question about why Parts I and II were being submitted so quickly for this landfill project?

A I don't know that I imagined that they were being submitted quickly. I knew they were being submitted first, which is part of the rules which allow a Part I and II submittal.

Q At the time they were submitted, did you know that Parts III and IV would follow before you even got a land use compatibility determination?

A No, I -- I didn't know that.

Q Okay. So did you ever have any discussion about whether your document retention policy was

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appropriate considering the fact that you knew that these landfill cases sometimes result in litigation?

A Well, I think our document retention policy, which has -- was developed in part in consultation with several lawyers over the 15- or 20-year period, are legitimate document retention policies, and that until you know you're going to be in a hearing or that there are parties and there has been parties determined, I -- I don't know that I'm going to be in a hearing.

Q Did you ever have any communications with Mr. Ryan about your document retention policy and whether it was appropriate?

A You know, I -- I don't -- I can't say that I even know if -- I'm pretty sure Brent knows we have one because we've worked with Brent for many years, but I don't know that I've -- that he and I've ever discussed it or if he's even read it or not. He's not one of the ones I was referring to when I said there are multiple lawyers that have looked at it, but --

Q What about any other lawyers who you've worked with in a contested case hearing setting, have you ever had communications with them about your document retention policy?

A Yes.

Q Okay. Such as?

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A Paul Gosselink.
Q Did you have a discussion about whether the document retention policy was an appropriate policy?
A I feel sure that was part of the discussion, but I don't remember the specific discussion.
Q Do you remember generally what the point of the discussion was?
A No.
Q Okay. Any other lawyers that you recall talking to about your document retention policy in terms of a contested case hearing?
A Kerry Russell.
Q Okay. Do you remember the point of that conversation?
A The point really of any of the conversations was whether or not the document retention policy made sense in terms of how we were trying to preserve our -- our documents and going forward. All of the lawyers, Gosselink, Kerry Russell, Brent Ryan, Mary Reagan, Bill Moltz, Vanessa Glen, all of them have asked us to comply with document requests --
Q Uh-huh.
A -- and -- and other informational requests on part of parties.
Q And have you had a discussion about the

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document retention policy and whether it's appropriate in light of the document requests that are submitted to you?
A With any and all of those? I mean, I'm not sure where you were headed with your question. I'm sorry.
Q So you mentioned that all of these lawyers, Bill Moltz, Mary Reagan, Kerry Russell, Paul Gosselink, Brent Ryan, you've had some discussion with them about the document retention policy when you're asked to produce your documents.
A No.
Q Okay.
A We've had discussions with them at various times, usually not when we're in the middle of a case, to help us develop a document retention policy. And so it was always in that context of what -- what should be in our document retention policy and what -- how can we say this and what are the needs for this and here is -- and it was always in the context of what we want to do with our documents and -- and how we want to manage our documents. And so their -- their input was as to the language that was used in the -- in our document retention.
Q Okay.

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A None of that was ever -- we never retained anybody to give us legal opinions. We simply were asking for help in formulating that.
Q Okay. And none suggested to you that you should revise that policy or do away with it?
A No, never did anybody suggest that.
Q Okay. Can you take a look at TCEQ Rule 305.47?
A 305.47, okay.
Q Okay. Now, doesn't that rule state that a permittee shall keep records throughout the term of the permit of data used to complete the final application and any supplemental information?
A Yes.
Q Doesn't that rule suggest to you that samples that were used to complete the application should be retained?
A It absolutely doesn't suggest that to me.
Q Okay. So your understanding of that means that so long as you keep the final boring logs that were included in the application, you're good?
A The final boring logs were what we used to make our interpretations in our demonstrations.
Q Okay.
A And -- and I might point out the TCEQ rules, nor anybody else's rules that I'm aware of, require the

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retention of samples or sample logs.
Q Okay. So --
A And that -- I think that has -- that's the context that we're talking about here is keeping them in what the context of the rules you're operating under are.
Q Okay. So the data that's used to complete the final application means the documents in the final application?
A Well, no, I think there are other pieces of information most of which we have preserved, like -- or all of which I know we've preserved, like emails and other internal communications and things like that. But a field log that has been augmented by lab testing and professionals reviewing the sample no longer has any real meaning.
Q Okay.
A So that's -- that's the basis of our -- of our procedures and how we do that.
Q So emails would -- would constitute data that is used to complete the final application, but samples are not data that are used to complete the final application. Is that right?
A The samples -- the record of the samples has been recorded. There is no requirement in anybody's

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world that I'm aware of that the retention of samples in perpetuity needs to happen.

Q Let me ask this question again: Samples, are samples considered data that is used to complete the final application?

A I think the samples as they are recorded in the log are -- are what the data is. That's the data.

Q So the samples are not data. That's your answer?

A I think that the samples that yield this data are what -- what are used in the application.

Q So your answer to my question is no, the samples are not data used to complete the final application. Is that right?

A No, I think -- I think I've said it now three times. The sample descriptions are what are in the application and the data that are recorded.

Q The sample descriptions are not what I'm asking about. I'm asking about the samples.

A I hear you. I understand that, and I'm --

Q And so my question is really a yes or no question. Are the samples' data used to complete the final application?

A In the context of what we've been talking about, they're not.

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Q Okay. Thank you.

So you testified earlier about a letter that you received from me --

A Uh-huh.

Q -- asking you to preserve evidence. Do you recall?

A I do.

Q Okay. And so you did get a copy of that letter. Is that right?

A Yes, ma'am.

Q Okay. And you recall reading it?

A Yes, ma'am.

Q Okay. What did you do after you read that letter?

A I don't recall. Field logs had already been destroyed, samples had already been destroyed, and we -- as far as I know, we've processed our document retention policy in accordance with our document retention policy.

Q So when you got the letter, do you recall whether you discussed it with anyone?

A I'm sure that I discussed it with Bill Hodges briefly, but I don't remember what we -- what we talked about. I'm also pretty sure that what I would have said was it's our intent to follow our document retention policy.

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Q And so if there had been samples that had not yet been discarded, are you saying that you would have, nevertheless, followed your document retention policy?

A Samples are not in our document retention policy. So --

Q I'm sorry. Documents.

A I don't -- I don't know -- I probably would have looked at that and said, okay, we're going to keep samples from that point on and -- but -- but the samples and the -- and the field logs had already been destroyed. We'd already produced our final logs. I believe we had already submitted the permit application the first time.

Q Okay. And so even -- did you -- after you received the letter, did you check to see if there were still any --

A I did --

Q Okay.

A -- yes, ma'am.

Q And that's how you knew that all of them had already been destroyed by that time?

A Yes, ma'am.

Q So how -- are they destroyed immediately after you submit your final application?

A There's not a -- the destruction of samples is

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not tied to any -- any other milestone.

Q And I'm talking about the documents, so the -- the drafts.

A The sample logs -- when we produced the final sample log -- I mean, the final boring logs, the sample -- field sample logs are destroyed at that point.

Q Okay. Immediately?

A Or relatively immediately. I mean, it's part of that same process. Once we have -- once we've looked at it, edited and determined that, yes, we're done with this field log and this is our final log, then we destroy that other log.

Q So by the time the application is submitted to the TCEQ, the initial logs are destroyed. Is that right?

A Yes, because we would have produced the final logs by then.

Q Okay. And did -- after you received the letter, did you check to see if any samples still existed?

A I did.

Q And those had already been destroyed as well?

A Uh-huh, uh-huh.

Q Yes?

A Yes, ma'am. I'm sorry.

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Q And if they had been destroyed, it would have been to make space because there was no -- a need for space?
A Yeah, we -- we rarely issue an order that says get rid of those samples. What almost always is the case of that we have a storage facility where we store samples, and somebody else has another project where we need the space, are we done with those samples, there's no need to continue to hold them, samples that have been opened and tested and -- and described and stacked up and other people have been in when we finally store them, boxes get knocked over, it becomes impossible to -- to document any longer how -- what's there. And so it is always been our process that as soon as we need the space, we -- we destroy the samples if we're finished with them.
Q Okay. And so you went and looked to see if the samples were still there after you got my letter?
A Uh-huh.
Q Where did you go?
A To our storage unit.
Q And how did you look for them?
A I identified the boxes that were -- that were in there.
Q Okay. And there weren't any?

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A There weren't any.
Q Okay. Speaking of -- we talked a little earlier about the Pintail Landfill application. Right?
A Yes.
Q Okay. And that contested case hearing had been set for November of this year. Is that right?
A Yes.
Q And now it's -- it's been continued. Correct?
A I think that's the status.
Q Can you explain to me what it is that precipitated the need for the continuance?
A There was water levels at the site that went up approximately five feet average across the site, which was higher than any of the water levels that were recorded during the 18 months that we recorded water levels for the characterization of that site. And so we determined that that was going to necessitate the updating of that information -- or we're requesting to update that information in the application.
Q And that's because now that you have acquired this new information about water levels the permit application cannot satisfy TCEQ rules. Isn't that right?
A I've heard other people say that. I'm not sure that that's exactly right, but it -- the data suggests

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that some elements of the design need to be addressed.
Q Have you said that? Have you ever said that the application as it -- as it existed cannot satisfy TCEQ rules?
A Not to -- not to my recollection.
Q Okay.
VIDEOGRAPHER: Miss, I don't mean to interrupt, but I've got about four minutes before I need to change disks again.
MS. PERALES: Okay. Why don't we take a short break so you can change. Okay.
VIDEOGRAPHER: This is the end of Disk 2, and it is 5:39, and we're off the record.
(Recess: 5:39 p.m. to 5:49 p.m.)
VIDEOGRAPHER: It is 5:49, and we are back on the record.
Q (BY MS. PERALES) Okay. Mr. Snyder, I think right before we took a break we were talking about the Pintail Landfill permit application, and the revisions that were having to be made in light of the new water level data --
A Uh-huh.
Q -- that was discovered.
MS. PERALES: Can I get this document marked, please? I do have several copies of this one.

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I'll circulate all the copies.
(Exhibit Snyder No. 5 marked)
Q (BY MS. PERALES) Can you take a look at Exhibit Snyder 5 and tell me what that is?
A It is an affidavit in the matter of Pintail Landfill that I signed, prepared.
Q Okay. And can you turn to Page 3 of the affidavit and look at the -- well, the only complete paragraph on that page?
A Okay.
Q And the first sentence, can you read that sentence?
A "Because of this newly-discovered water level information, Pintail's permit application, which was based on the seasonal high water level, established using the previously collected data from the site, no longer satisfies the requirement of TCEQ's permitting rules."
Q Okay. Thank you.
And was -- do you recall what this affidavit was prepared for?
A I know that it was prepared for one of the submittals and attached to one of Brent's motions. I don't remember specifically which one.
Q Could it have been a motion for continuance?

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A It's possible. I don't remember.
Q Okay.
A And -- and what I would say is is that, if I understood your -- your question and maybe I didn't understand it -- I was not saying that the application itself couldn't meet the rules.
Q Okay. It could meet the rules?
A I was not saying that it couldn't.
Q So your -- does that mean that it could meet the rules?
A Yes.
Q Okay. How do you reconcile that statement that it could meet the rules with the statement in your affidavit that says that the application no longer satisfies the requirements of TCEQ's permitting rules?
A With the addition of the -- of the data.
Q Oh. So if we left out the new information, then it would satisfy the rules maybe?
A I'm not sure the --
Q Well, I guess I don't understand what you were saying. So the new data -- with the new data, you think the application could still meet the rules?
A With the new data, yes.
Q The application as it -- as it exists now, the technically complete application?

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A With the new data and -- and the revisions that we propose, yes.
Q Oh, with revisions. Okay. And I haven't seen those revisions and I don't think they've been made available to any parties, so that's where the confusion is. I don't know what those revisions to the application are.
So when I refer to the permit application, I'm talking about the application that was declared technically complete and that was the basis of the contested case hearing. That application no longer satisfies TCEQ's permitting rules. Right?
A I think that's what the plain language says that's what it says.
Q Okay. When did you first discover this error in groundwater elevation?
A It was not an error. It was a change.
Q Okay. When did you first discover the change?
A The data was discovered on -- I think it was July 17th of this year.
Q And how was it discovered?
A By taking water levels. The opponents requested to go out and take water levels at the site, which I did on my own that day, and discovered that the water levels had -- had come up over what was included

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in the application.
Q Isn't it true that you would have never -- that you would have never discovered this -- this new information if the protesting parties had not insisted on a site visit?
A I don't know if that's true or not.
Q Would you have gone out there and collected new groundwater elevation information?
A I -- I don't know.
Q Did you have any plans to do so?
A We didn't have any immediate plans to do so.
Q Okay. Do you have an opinion about what caused this change in groundwater elevation?
A Oh, yeah, I -- I have a clear opinion. I think was detailed in this that we had an extraordinary collection of high precipitation events as documented in the National Weather Service and other documents that showed that we had that, and it saturated the -- the ground and -- and all the creeks and streams in the area were at capacity.
Q And when were these high precipitation events? When did they take place?
A They took place from -- speaking from memory now --
Q Sure.

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A -- they took place from the end of March through the end of June.
Q Okay. And so --
A In fact, into early July, too.
Q Okay. And so we had these heavy precipitation events between March and the end of June, and yet as of July 17th, you had no plans to go back and check groundwater elevations to see if there had been any impact on them. Is that right?
A That's right.
Q Okay. So in a sense it was a good thing that the protesting parties had insisted on a site visit, isn't it?
A I -- I don't have an opinion about that.
Q Okay. Well, if they hadn't and you had no plans to go back and check on the water level data, isn't it possible that TCEQ might have granted you a permit based on data that was no longer -- at least it was no longer current. Is that right?
A I think every permit that's issued is issued with data that is no longer current.
Q And it's no longer accurate. Isn't that right?
A I think that's -- that's a mischaracterization.
Q So the cease --
A Accurate was not part of the discussion.

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Q What discussion?
A The discussion of our motions.
Q Okay. Let's see. So how would you describe it? What -- what happened with -- between the seasonal high water level data that was included in the application and the new seasonal high water level data that was obtained in July?
A You know, I think through this whole thing if you read all of the document, it will tell you that during the course of our characterization, we had some extraordinary high water levels -- high water events that affected the groundwater levels on part of the site, which is all documented in the application, and -- but we didn't have one of this -- of this level, but there was no real way to have predicted that this was going to affect it like it affected it.
Q I'm just trying to determine what term I should use to describe the new seasonal high water level data that you could agree with. Is it --
A New.
Q New information.
Okay. So isn't it possible that if the protesting parties had not insisted on a site visit, TCEQ might have granted you a permit based on old seasonal high water level data?

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A Yes.
Q Okay. And that old seasonal high water level data no longer represents the conditions existing at the site?
A I'm -- I'm not sure what the question is there. I'm sorry.
Q Do you agree that the old seasonal high water level data no longer represents the existing conditions at the site?
A I think that's clear.
Q Okay. And it's possible that TCEQ could have issued you a permit based on old seasonal high water level data that no longer represents the existing conditions at the site?
A I think that's the same question I just answered a minute ago.
Q Well, I added to it --
A Okay.
Q -- that the TCEQ might have issued a permit. If -- if the site visit had not happened, the TCEQ might have issued a permit based on old seasonal high water level data that is no longer representative of the conditions at the site?
A Yes.
Q Okay. Are you currently redesigning the

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Pintail Landfill?
A We've had discussions of that. That hasn't happened yet.
Q Okay. Do you have any idea of the estimated completion date for the revisions to the application?
A I do not.
Q Okay. Do you have any idea about the extent of the revisions that will need to occur?
A Not with any kind of specificity.
Q Okay. Do you anticipate that the TCEQ staff will have to, once again, review the application after it's revised?
A I -- I guess you'd have to ask them, but I guess I would assume that they would.
Q Okay. And then if all goes according to the best-case scenario for Pintail, the parties would then return to SOAH and start the hearing process based on the revised landfill permit application?
A I guess. That really gets kind of beyond my -- that's all discussions that the lawyers have. I don't really know that I know what will happen.
Q Okay.
A Sorry.
Q Do you have any reason to think that the discovery process might be extended or it might start

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all over again?
A I don't have any idea.
Q Do you intend to preserve any samples or initial drafts of field logs this time around now that you are in a contested case hearing and you know that the parties are asking for that type of information?
A Yes, ma'am.
Q Has this type of thing ever happened to you before where you've had to redesign a landfill because of new information that's been discovered?
A I've been involved in some cases where, as part of settlement agreements or the settlement discussion process, revisions had to be made to permit applications and hearings were continued and then revisions were done.
Q And -- and the -- those situations you're describing was because of settlement discussions, did I understand that?
A I believe -- as I recall, those were the ones I was referring to, yes.
Q Okay. But this -- the Pintail case didn't involve a settlement discussion. Isn't that right?
A As far as I know, it didn't. I've not been involved in any of that, but as far as I know it hasn't -- it wasn't.

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Q Do you recall what types of document retention policies you've had at -- when you worked with the oil and gas employers?
A I was not aware of document retention policies --
Q Okay.
A -- at that time.
Q Have you had any employer that has had a document retention policy similar to the one you have now at Biggs & Mathews?
A Yes.
Q Which ones?
A EMCON.
Q Okay. Is that the only one?
A Yes.
Q And do you recall what that document retention policy was?
A It was probably just pretty much what this one is.
Q Destroy all drafts as soon as the final logs are prepared?
A Yeah, there's other elements to the document retention policy, but that's one of them.
Q Okay. And samples would have also been destroyed?

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A Yeah, I think that's -- in my experience, that's pretty standard practice. People don't store samples forever.
Q Okay. That's not my experience.
Let's see. Do you know whether Republic is the operator for the San Angelo Landfill?
A We haven't been working on the San Angelo landfill since Republic took over that site. So I -- I don't have any idea. I haven't kept up with it.
MS. PERALES: Okay. I think -- do we need a minute to confer before I --
MR. HOBBS: No.
MS. PERALES: I'm ready to pass the witness.
MR. MAGEE: Do you want me to go next? I don't have any questions.
(Laughter)
MR. RYAN: Good. Yeah, then I do want you to go next.
MR. MAGEE: I was like hold on. Wait.
(Laughter)
MR. RYAN: Hold on. I'll let you run down to your car.
Well, let's see. Oh, I think I just have a couple.

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EXAMINATION

BY MR. RYAN:
Q Mr. Snyder, I want to follow up on some of the questions Ms. Perales was asking you about Pintail and in connection with TCEQ's rules related to seasonal high water levels. Is it your understanding that those rules provide for adjusting seasonal high water levels based on data acquired after a permit is issued?
A Yes, it's my understanding they do.
MR. RYAN: I'll pass the witness.
MS. PERALES: I have no follow-up questions.
MR. TUCKER: No questions.
VIDEOGRAPHER: Okay. It's 6:04, and we're off the record.
(Deposition concluded at 6:04 p.m.)

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CHANGES AND SIGNATURE

WITNESS NAME: JOHN MICHAEL SNYDER DATE: 09/21/15

PAGE/LINE	CHANGE	REASON

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I, JOHN MICHAEL SNYDER, have read the foregoing deposition and hereby affix my signature that same is true and correct, except as noted above.

_____
JOHN MICHAEL SNYDER

THE STATE OF _____)
COUNTY OF _____)

Before me, _____, on this day personally appeared JOHN MICHAEL SNYDER, known to me or proved to me on the oath of _____ or through _____ (description of identity card or other document) to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he/she executed the same for the purpose and consideration therein expressed.

Given under my hand and seal of office on this _____ day of _____, 2015.

_____
NOTARY PUBLIC IN AND FOR
THE STATE OF _____

My Commission Expires: _____

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SOAH DOCKET NO. 582-15-2082
TCEQ DOCKET NO. 2015-0069-MSW

APPLICATION OF 130 ENVIRONMENTAL PARK, LLC, FOR PROPOSED PERMIT NO. 2383	)	STATE OFFICE OF ADMINISTRATIVE HEARINGS

REPORTER'S CERTIFICATE
ORAL VIDEOTAPED DEPOSITION OF JOHN MICHAEL SNYDER
SEPTEMBER 21, 2015

I, Kim Pence, Certified Shorthand Reporter in and for the State of Texas, hereby certify to the following:

That the witness, JOHN MICHAEL SNYDER, was duly sworn and that the transcript of the deposition is a true record of the testimony given by the witness;

That the deposition transcript was duly submitted on _____, to the witness or to the attorney for the witness for examination, signature, and return to me by _____;

That pursuant to information given to the deposition officer at the time said testimony was taken, the following includes all parties of record present and the amount of time used by each party at the time of the deposition:

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Ms. Merisa Perales (3 hours, 33 minutes)
Attorney for Protestants
Mr. Brent Ryan (1 minutes)
Attorney for 130 Park Environmental Park, LLC:
Mr. Eric Magee (no time)
Attorney for Caldwell County
Mr. Aaron Tucker (no time)
Attorney for Office of Public Interest Counsel of the TCEQ
Ms. Kathryn Schroeder (no time)
Attorney for Executive Director of the TCEQ

I further certify that I am neither counsel for, related to, nor employed by any of the parties in the action in which this proceeding was taken, and further that I am not financially or otherwise interested in the outcome of this action.

Certified to by me on this 30th day of September 2015.

Kim Pence

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