Report. HW. 314034. 2014-06-30. CCR_Bldg_Demo_ACM_Abatement

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Letter of Transmittal

Date: *04/01/15*	Job No.: *449230.01000*
RE: *Final Construction Completion Report – Phase I Sitewide Building Demolition and Asbestos Containing Material Abatement, Former Texaco Research Center-Beacon, NY*	

TO:

Mr. Paul Patel, P.E.
Environmental Engineer, Remedial Bureau C

Section B; Division of Environmental Remediation, New York State Department of Environmental Conservation

625 Broadway

Albany, NY 12233-7014

WE ARE SENDING YOU THE FOLLOWING ITEMS:

☐ Shop drawings ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Copy of Letter ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

Dated: _____ ☐ Charge Order ☐ _____

COPIES	DESCRIPTION
1	***One electronic and one hard copy with signed/stamped Engineer's Certification page for Final Construction Completion Report for Phase I Sitewide Building Demolition and Asbestos Containing Material Abatement; Former Texaco Research Center-Beacon, NY for your review, approval, and records.***

SAVE

THESE ARE TRANSMITED as checked below:

☒ For approval ☐ For checking ☐ Resubmit ____ copies for approval

☒ For your use ☐ Approved as submitted ☐ Design only, not for construction

☐ For review and comment ☐ Approved as noted ☐ Return _____ corrected prints

☐ For your action ☐ Returned for corrections ☐ _____

REMARKS: ***Mr. Patel, Attached are electronic and hard copies of the Final Construction Completion Report, for Phase I Sitewide Building Demolition and Asbestos Containing Material (ACM) Abatement at the Former Texaco Research Center-Beacon, NY for your review, approval, and records. Please do not hesitate to contact me at 315-263-6053, should there be any questions or if we can provide additional assistance with the enclosed report.***

Thank You

COPY TO: Project File

M. Hendrickson, Chevron EMC

SIGNED: Craig F Butler

Craig F. Butler, P.E. LEED AP

If enclosures are not as noted, please notify us at once.

C:\Users\48988\Documents\Work Folder\DESC Projects\CVX Projects\Beacon\EMC\Demolition CCR Trnsmtl Letter to NYSDEC040115.docx

Final

CONSTRUCTION COMPLETION REPORT (CCR)
PHASE I SITEWIDE BUILDING DEMOLITION AND ASBESTOS CONTAINING MATERIAL (ACM) ABATEMENT
FORMER TEXACO RESEARCH CENTER
Beacon, New York

Site ID #314004
EPA ID # 091894899

Prepared For:

Chevron

Mr. Mark Hendrickson
Chevron Environmental Management Company
Chevron Bellaire Office Building
4800 Fournace Place, Room E-534C
Bellaire, Texas, 77401

Prepared By:

PARSONS
301 Plainfield Road, Suite 350
Syracuse, New York 13212
Phone: (315) 451-9560
Fax: (315) 451-9570

June 2014

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LIST OF APPENDICES (con't)

LIST OF ACRONYMS

ACM	Asbestos Containing Material
AM-241	Americium-241
ASTs	Aboveground Storage Tanks
BR	Brick
Brandenburg	Brandenburg Industrial Services Company
C&D	Construction and Demolition
CAMP	Community Air Monitoring Program
CB	Clay Block
CCR	Construction Completion Report
COC	chain-of-custody
CT	Concrete
E&S	Erosion and Sedimentation
EHI	Environmental Health, Inc
EMC	Chevron EMC
Emteque	Emteque Corporation
ENTACT	ENTACT Environmental Services
E-Waste	Electronic Waste
Hg	Mercury
ICR	Industrial Code Rule
LBP	Lead Based Paint
MB	Masonry Block
mg/L	milligrams per liter
mg/m^3	milligrams per cubic meter
MS4	Municipal Separate Storm Sewer Systems
NOI	Notice of Intent
NOT	Notice of Termination
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOL	New York State Department of Labor
OE	Operational Excellence
P.E.	Professional Engineer
PACM	Potentially Asbestos Containing Materials
PCB	Polychlorinated Biphenyl
PPE	Personal Protective Equipment
RFI	RCRA Facility Investigation
SFSP	Superfund and Specialty Portfolios
SMCs	Stormwater Management Controls

SPDES	State Pollution Discharge Elimination System

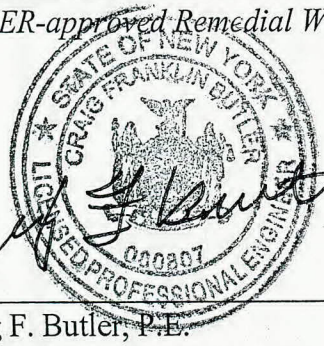
LIST OF ACRONYMS (con't)

SWPPP	Stormwater Pollution Prevention Plan
TAGM	Technical Assistance Guidance Memorandum
TCLP	Toxicity Characteristic Leaching Procedure
TRCB	Texaco Research Center, Beacon, New York facility
TSDF	Temporary Storage Disposal Facilities
USEPA	U.S. Environmental Protection Agency
WM	Waste Management, Inc.
WWTP	Wastewater Treatment Plant

ENGINEER'S CERTIFICATION

CERTIFICATION OF COMPLETION

I, Craig F. Butler certify that I am currently a NYS registered professional engineer, I had primary direct responsibility for the implementation of the subject construction program, and I certify that the Remedial Work Plan described in the Phase I Sitewide Building Demolition and Asbestos Containing Material (ACM) Abatement Scope of Work and Specifications was implemented and that all construction activities were completed in substantial conformance with the DER-approved Remedial Work Plan.



03/27/15

Craig F. Butler, P.E.
New York, No. 080807
PARSONS

Date

SECTION 1

INTRODUCTION AND OVERVIEW

1.1 REPORT PURPOSE

This Construction Completion Report (CCR) describes the work activities associated with the Sitewide Building Demolition and Asbestos Containing Material (ACM) Abatement project that was conducted at the Former Texaco Research Center, Beacon, New York facility (Former TRCB). The Former TRCB was Texaco's primary downstream research and development facility, and is currently owned by Chevron U.S.A., following the merger of these two companies in 2002. Texaco purchased the Former TRCB facility in 1931 and continued operations at the site until September 2003.

At the time of the work described in this report, the Former TRCB facility was regulated by a Part 373 Permit (Permit No. 3-1330-00048/16-0) issued by the New York State Department of Environmental Conservation (NYSDEC). As such, the facility was subject to the Corrective Action provisions of the Part 373 Permit, including site environmental investigation and remediation requirements. To date, there have been several significant environmental investigations and corrective actions completed, as documented in the following reports:

- Closure report - Phase II RCRA facility assessment – sampling visit; interim corrective measure: inactive line abandonment; October 2006
- Completion certification report; interim corrective measure: soil excavation recreation area; October 2006
- Post-closure permit; annual report; hazardous waste management permit; former Texaco Research Center; 2006 through 2012
- Sitewide RCRA Facility Investigation (RFI); June 2007
- Supplemental sitewide RCRA facility investigation; July 2009
- Sitewide groundwater sampling events; 2008, 2010, 2012, and 2013;
- Environmental and geotechnical investigation report; former mill Buildings 3 through 6; January 2011
- Phase I and II environmental site assessment; Potter Brothers property; December 2010
- Sitewide soil sampling event; 2010 sampling of main campus property; December 2010
- Westage realty property groundwater investigation report; January 2011
- Concrete foundation drilling investigation report; May 2013
- Aerial photography event; May 2012, July 2012, September 2012, November 2012, February 2013, and May 2013
- Undeveloped property area subsurface investigation report; September 2012
- Revised demolition scope of work former Texaco Research Center Beacon, New York; February 2011

- Asbestos survey report former Texaco Research Center; August 2009
- Stormwater pollution prevention plan for construction activity; revised April 2010;

Prior to the initiation of the Sitewide Building Demolition and ACM Abatement project at the Former TRCB facility, the soil and groundwater media located underneath each of the site building footprints had not been sampled and analyzed. This project was the next logical step to continue the environmental characterization of the facility, by providing enhanced access to the building basements or foundation slabs to enable collection and analyses of soil and groundwater (where present) samples from underneath the site buildings..

1.2 REPORT ORGANIZATION

This report is organized as follows:

- Section 1 provide the report organization, identification of project team members, and the report basis;
- Section 2 provides an overview of the project background;
- Section 3 describes the project permitting and associated environmental controls utilized over the course of project;
- Section 4 provides a summary of the ACM abatement and building demolition processes;
- Section 5 describes the project health and safety measures;
- Section 6 provides describes the project waste material handling, disposal, and recycling procedures;

1.3 PROJECT TEAM

This section provides a summary of the involved parties and their roles. A summary listing for each party is provided in Table 1.1.

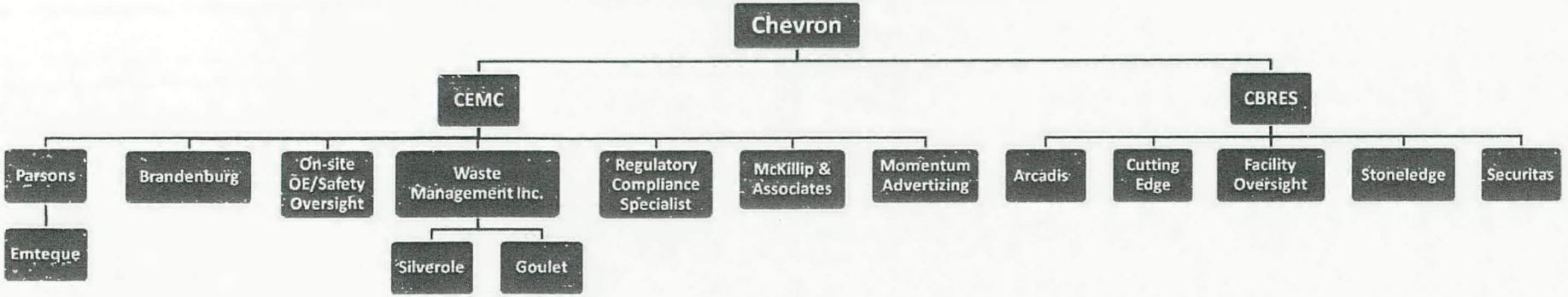
1.3.1 NYSDEC

The NYSDEC was the lead regulatory agency for the Former TRCB Building Demolition project. Mr. Paul Patel was the Project Manager for NYSDEC and participated in regular project meetings and conference calls, and conducted periodic site inspections during project construction activities.

1.3.2 NYSDOL

The New York State Department of Labor (NYSDOL) was the lead regulatory agency responsible for ACM abatement compliance, in accordance with New York State Industrial Code Rule No. 56 regulations. Key NYSDOL personnel for the Former TRCB Sitewide Building Demolition project included Field Inspectors Jason Pensabene and Thomas Abbott, and Christopher Alonge, P.E., Engineering Manager. During the course of the project Mssrs. Pensabene and Abbott made regular site inspections of ACM abatement activities, and Mr. Alonge reviewed and approved work plans and variance applications.

Table 1.1
Final Mobilization Contracting



Company/Role	Major Responsibilities
CEMC	Asbestos abatement, building demolition, public relations, site redevelopment support, site assessment, site remediation
CBRES	Facility management, dam/mill building improvements, public relations, site redevelopment
Parsons	Environmental services, asbestos abatement/building demolition oversight, public relations support, site redevelopment support, site assessment, site remediation
Brandenburg	Asbestos abatement and building demolition services
On-site OE/Safety Oversight	Asbestos abatement and building demolition safety
Waste Management Inc.	Waste transportation and disposal
Regulatory Compliance Specialist	Regulatory compliance and reporting, public relations
McKillip & Associates	Community Advisory Panel facilitation
Momentum Advertizing	Public affairs support
Arcadis	Engineering services supporting dam and mill building improvements
Cutting Edge	Construction services supporting dam and mill building improvements
Facility Oversight	Facility maintenance, public relations
Stoneledge	Facility maintenance services (grass mowing, snow plowing, etc.)
Securitas	Site security
Emteque	Independent 3rd party air monitoring oversight
Silverole	Waste transportation
Goulet	Waste transportation

1.3.3 Town of Fishkill

The Town of Fishkill was the lead code enforcement authority responsible for issuing the project building demolition permits. In addition, the Town is also the Municipal Separate Storm Sewer Systems (MS4) permitting authority, responsible for administering the Stormwater Pollution Prevention Plan (SWPPP) permit for this project. Key officials for the Town of Fishkill included Robert LaColla, Town Supervisor; John Andrews, P.E. Town Engineer; Joel Petrus, Town Building Inspector; Glenn Scofield, Highway Department Superintendent; and Don Williams, Town of Fishkill Police Chief.

1.3.4 Chevron Environmental Management Company – Superfund and Specialty Portfolios Business Unit (Chevron)

Chevron EMC was the Chevron USA organization responsible for managing the Former TRCB Sitewide Building Demolition project. Mark Hendrickson was the Project Manager for Chevron EMC Superfund and Specialty Portfolios (SFSP) and he participated on weekly project progress meetings and conducted numerous site visits during construction. Joseph Barlow was the Site Health & Safety Officer, and additional project support was provided by Paul Bishop Chevron EMC SFSP Operational Excellence (OE) Supervisor; Gary Jacobson, Chevron EMC SFSP Team Leader, and Bob John, Chevron EMC SFSP General Manager.

1.3.5 Brandenburg Industrial Services Company (Brandenburg)

Brandenburg Industrial Services Company (Brandenburg) was the primary project contractor responsible for conducting the ACM abatement and building demolition activities and was contracted directed with Chevron. Jason Harshman was the Project Manager for Brandenburg, and Timothy Pieczynski was the Field Supervisor. Additional key project personnel for Brandenburg were as follows:

- Kevin Smith (Site Health & Safety Officer and ACM Abatement Supervisor)
- Tyler Dumont (Field Engineer)
- Kermit Levering (ACM Abatement Supervisor)
- Mauricio Gonzalez (ACM Abatement Supervisor)

1.3.6 Parsons

Parsons was the environmental engineering and construction management supplier retained by Chevron EMC for the Sitewide Building Demolition project. Parsons provided full-time construction oversight of project activities via daily inspections, documenting work activities, reviewing contractor submittals, providing engineering support for field changes, coordinating reviews submittals of work plans with the agencies and subcontractors, and coordinating project meetings.

Project personnel for Parsons included:

- Craig Butler, P.E. (Project Manager)
- Charles (Chip) Strotz (Construction Manager)
- Edward Ashton (SWPPP Inspector and Field Inspector)

- Victor Gorman (Construction Manager)

1.3.7 Emteque

Emteque Corporation (Emteque) was a subcontractor to Parsons on the Sitewide Building Demolition project. They were responsible for completing the pre-demolition Sitewide building materials surveys, and also served as the Third Party Independent Oversight contractor, overseeing ACM abatement activities, in accordance with NYSDOL Industrial Code Rule No. 56 requirements. Primary project personnel for Emteque on this project were as follows:

- Pat Mullo (Project Manager)
- Edward Ceccacci (Project Manager)
- Jason Greene (ACM Project Monitor)
- Christopher Patti (ACM Project Monitor)
- Javid Rahim (ACM Project Monitor)

1.3.8 Waste Management, Inc.

Waste Management, Inc. (WM) was the Chevron EMC supplier responsible for coordinating packaging, transportation, permitting/ manifesting, and disposal of waste shipments that were generated during the Sitewide Building Demolition project. Christopher Lowe was the Regional Waste Coordinator for WM on this project. Additional WM support for this project was provided by William Curran and Joseph Moa, who provided management support from the WM, Kingston, NY Regional Service Center.

SECTION 2

PROJECT BACKGROUND/CHRONOLOGY OF EVENTS

2.1 PROJECT OBJECTIVES

This section describes the project background and chronology of events regarding the ACM abatement and building demolition activities for the Former TRCB facility. Project documentation consisting of permits, plans, executed shipping manifests, disposal lists, project photographs and daily field reports are provided in Appendices A through J.

2.2 SITE DESCRIPTION / BACKGROUND

Texaco formerly operated a Research Center in Glenham (Beacon), New York from 1931 until 2002, when it merged with Chevron, and then closed the facility in 2003. The property is located on approximately 153 acres. The Main Facility includes all of the developed area north of the Fishkill Creek and was used as a laboratory complex engaged in research, development, and technical services related to petroleum products and energy. The Main Facility included approximately fifty six (56) buildings with approximately 413,000 square feet of floor space. Buildings were constructed between the mid-1800's and 1990 and include multi-story laboratory and office space, warehouses, sheds, and a wastewater treatment plant (WWTP).

The Recreation Area includes approximately 95 acres located south of Fishkill Creek and south of Washington Avenue . There were four structures on the Recreation Area including a pump house, washroom, storage shed, and picnic shelter.

Chevron embarked on a plan to demolish those structures it no longer required to maintain operations at the site. The overall scope of work consisted of the demolition and disposal of forty-six (46) buildings and their contents, facility electrical and mechanical systems, outdoor air handling units, pipe racks, outdoor electrical distribution equipment, out of service aboveground storage tanks (ASTs), and ancillary site facilities. These structures are shown on Demolition Site Plan 444930-C-001 in Appendix 1 and identified in Appendix 2. The succeeding sections describe in detail the project requirements.

The work described in this report is the first phase (Phase 1) of a planned two-phase building removal project at the former TRCB facility. The Phase 1 activities included removal of the site buildings to the slab or basement level, and the Phase 2 work will include removal of the remaining site buildings, along with removal of the building slabs and basements still in place at the conclusion of the Phase 1 activities. The Phase 2 work will be conducted at some point in the future, most probably in 2016 or 2017.

2.3 PROJECT OVERVIEW AND CHRONOLOGY OF EVENTS

The Former TRCB Sitewide Building Demolition and ACM Abatement project was the culmination of several years of planning, permitting, procurement, pre-demolition, and project execution activities. A summary of the key milestone events and dates associated with this

project is provided in Table 2.1, and includes a listing of the project planning, permitting, and activities that occurred over four stages, as follows:

- Project planning, procurement and permitting activities;
- Pre-Demolition Site Work activities;
- Initial ACM Abatement and Building Demolition Mobilization, and;
- Final ACM Abatement and Building Demolition Mobilization

TABLE 2.1
CHRONOLOGY OF KEY PROJECT MILESTONES AND DATES

1. Project Planning/ Procurement and Permitting Activities	
a. ACM Surveys and Abatement	i. ConTest ACM Surveys and Abatement Work; 1990 – 1994 ii. ATC ACM Surveys; 1994-1998 iii. EHI ACM Preliminary Survey; July 2008 iv. Emteque ACM Sampling Survey; December 2008 v. Lead and PCB Materials Survey, March 2010
b. Permitting and Associated Plans Preparation	i. Stormwater Pollution Prevention Plan (SWPPP); September 2009, Revised April 2010 ii. Community Air Monitoring Program (CAMP); September 2009 iii. ACM Abatement Work Plan; September 2009, Revised January 2011 iv. Chevron Beacon Historic Buildings Evaluation Report; February 2010 v. Maple Street Pre- and Post-Demolition Buildings Structural Surveys; July and September 2011
2. Pre- Demolition Work Activities	a. Non-hazardous / Universal Waste removal and processing; October 2009 through March 2010
3. Initial ACM Abatement and Building Demolition Project Mobilization	a. Bidding and Contract Award Activities; November 2009 through March 2010 b. Initial Project Mobilization and ACM Abatement work; March through June 2010 c. Project Break and Mitigation Plan preparation; June through November 2010 d. Initial Contract Termination – November 2010

4. Final ACM Abatement and Building Demolition Project Mobilization	a. Bidding and Contract Award Activities; December 2010 through April 2011; b. Final Mobilization and preliminary site activities; April through May 2011; c. Building "Engineering Surveys"; April through May 2011 d. Utility Isolation and Disconnection activities; May through July 2011; e. ACM Abatement Activities and Destructive Sampling/ Variance Applications / Work Plan Submittals; May 2011 through December 2012 f. Building and structure demolition activities; June 2011 through December 2012 g. Site Restoration activities; November through December 2012 h. Project Demobilization activities; November 2012 through February 2013

Parsons conducted a complete environmental survey and hazardous materials assessment of all buildings, site structures, mechanical systems, mechanical and electrical utility systems. The purpose of the survey was to identify materials that would pose a threat to health, safety, or the environment if not handled safely or properly disposed of. The surveys consisted of an asbestos survey, polychlorinated biphenyl (PCB) material sampling survey, and pre-demolition environmental assessment. A description of the scope and findings of each assessment follow.

2.3.1 Non-Asbestos Regulated Universal Waste Removal

This section describes the removal and disposal of non-asbestos regulated universal waste from the former Texaco Research Facility located in Beacon, (Glenham) NY. The description includes the participants responsible for material recovery, the time frame in which the work was conducted, and the final disposition of universal waste materials from the site.

Chevron as owner of the property had overall project responsibility for permitting and manifesting the waste stream encountered at the facility for disposal. To accomplish this task Chevron retained the services of three prime contractors to assist with the disposal effort:

- Parsons of Syracuse, New York acting as Owner's representative provided construction oversight services to direct the work and manage Chevron's subcontractors, ENTACT Environmental Services and Waste Management, Inc., who were directly engaged in execution of this task.
- ENTACT Environmental Services (ENTACT) provided construction services to collect, package, stage and load universal waste materials for offsite disposal. ENTACT subcontracted the services of D. Silvestri Sons, Inc. of Fishkill, NY to recover refrigerant from on site air conditioning and refrigeration equipment and SimplexGrinnell to disarm fire suppression systems and recover portable fire extinguishers.
- WM provided services to transport and document recovery and recycling of the regulated waste stream located at the facility.

The removal effort commenced on October 26, 2009 and continued through December 11, 2009. Parsons and ENTACT jointly conducted a resurvey of the site and buildings to verify facilities previously identified as containing universal waste. Twenty nine (29) buildings were selected for waste removal including thirty (30) outdoor air conditioning units and twenty-four

(24) electrical transformers containing nonhazardous transformer oil. The buildings identified were:

Bldg. 1 - Office Building
Bldg. 2 - Sheet Metal Shop
Bldg. 3 - Laboratory Building
Bldg. 4 - Generator Building
Bldg. 5 - Fire Pump House
Bldg. 6 - Utility and Office Building
Bldg. 26 - Boiler House
Bldg. 27 - Fuel Storage
Bldg. 28 - Mechanical Laboratory
Bldg. 29 - Mechanical Laboratory
Bldg. 30 - Research Laboratory
Bldg. 36 - Jet Propulsion Laboratory
Bldg. 37 - Fuels Blending Building
Bldg. 38 - Fuels Laboratory
Bldg. 39 - Engineering Laboratory
Bldg. 40 - Office Building
Bldg. 42 - Testing Laboratory
Bldg. 44 - Power Distribution Building
Bldg. 50 - Main Office Building
Bldg. 51 - Laboratory Building
Bldg. 52 - Sample Storage
Bldg. 55 - Storage Building
Bldg. 56 - Garage Building
Bldg. 62 - Boiler Fuel Pump house
Bldg. 65 - Testing Laboratory
Bldg. 70 -Fuel & Lubricant Building
Bldg. 79 -Vehicle Testing Building
Bldg. 84 - Generator Backup Building
Bldg. 91 - Storage Building

Materials recovered from these structures consisted of:

- Fluorescent Lamps/Bulbs – 12,546 straight fluorescent lamps and 659 fluorescent bulbs of various sizes and configurations were removed from ceiling mounted light fixtures located throughout the facility.
- Mercury Vapor Lamps – Sixty-two (62) mercury vapor lamps were removed from high bay lighting fixtures located in Buildings 5 and 42.
- Fluorescent Lighting Ballasts – 21,416 pounds of lighting ballasts, labeled by the manufacturer as PCB Free, were removed concurrently with the fluorescent lamps. Labeled ballasts were segregated from unmarked ballasts for recycling.
- Unmarked Lighting Ballasts – 685 pounds of unmarked (Non-Leaking) lighting ballasts were packaged in metal drums as suspect PCB containing devices. These ballasts were transported to Waste Management's LampTracker® facility in Phoenix, Arizona for TSCA incineration.
- Mercury Containing Devices – Ninety-seven (97) mercury containing devices consisting of temperature control devices with built thermometers or mercury ampules, manometers, and in-line temperature elements were recovered from buildings and process equipment.

- Batteries – 1,907 pounds of batteries were recovered for recycling. These batteries were principally rechargeable sealed lead acid batteries from data process control panels, fire protection alarm systems, and emergency lighting fixtures. Small quantities of liquid filled lead acid batteries were also recovered from emergency generators and automotive equipment. Other batteries included single use alkaline and lithium batteries.
- Electronic Equipment (E-Waste) – 20,533 pounds of E-Waste composed of computers, computer monitors, CRT monitors from testing and research laboratories, electronic diagnostic equipment, uninterruptible power supplies, solid state circuit boards, photoelectric heat detectors, and smoke detectors were recovered for recycling.
- Liquid and Gas Refrigerant – 833 pounds of refrigerant was recovered for recycling from approximately 370 individual refrigeration and cooling units. This equipment included process chillers, roof mounted HVAC units, refrigeration equipment, individual air conditioners, both window and wall mounted units, and water coolers.
- Fire Extinguishing Equipment – SimplexGrinnell disarmed three (3) fire suppression systems consisting of one Halon and two (2) CO2, fire extinguishing agents. In addition, 334 portable dry chemical and CO2 fire extinguishers were recovered for recycling.
- Radioactive Containing Devices – Thirty-six (36) self-illuminating exit signs containing Tritium were transferred to Shield Source Incorporated, a licensed manufacturer of self luminous signs, for disposal. Nine ionization smoke detectors containing low levels of a radioactive element americium-241 (AM-241) were shipped to Hochiki America Corporation for disassembly and recycling of the isotope.
- Transformer Oil - 3,435 gallons of nonhazardous transformer oil was recovered by Norlite Corporation, a manufacturer of expanded shale aggregate, for use as fuel in its rotary drying kiln.
- Automotive Fluids – 440 gallons of automotive fuel and lubricants consisting of gasoline, diesel fuel, motor oil, grease, and thirty-two (32) fuel filters were obtained from backup generators, generator day tanks, and laboratory testing equipment.
- Equipment Fluids – Various quantities of hydraulic oil, compressor oil, lubricating oils, petroleum distillates and chemical treatment additives were recovered from hydraulic elevators, refrigeration equipment, plant air compressors, and facility utility equipment.

With the exception of refrigerant recovery and fire extinguishing agents, WM coordinated classification of the waste stream, supervised packaging, prepared bills of lading, generated waste manifests and coordinated shipment of these products to recycling facilities or licensed temporary storage disposal facilities (TSDF) for disposal. Four shipments of non-hazardous materials were transported to WM's LampTracker® facility in Phoenix, Arizona for recycling. RCRA regulated hazardous materials were transported to a disposal facility managed by Heritage Environmental Services in Liverpool, Ohio for recycling as fuel or destruction by incineration.

All non-asbestos regulated universal wastes collected at the Chevron facility were properly managed in compliance with NYSDEC Standard for Universal Waste Subpart 374-3 and USEPA regulation 40CFR Part 273 Standardization for Universal Waste Management. Certificates of recycling and waste disposal manifests documenting the final disposition of these materials are included in Appendix I.

SECTION 3

PROJECT PERMITTING AND ENVIRONMENTAL CONTROLS

3.1 INTRODUCTION AND OVERVIEW

The Sitewide Building Demolition and ACM Abatement Project took approximately two (2) years to complete from the onset of engineering and subcontract procurement to physical execution. Project activities incorporated a variety of services and associated fees including engineering, support services, permitting, waste management, and construction demolition.

3.2 SITE SURVEYS

3.2.1 Asbestos Surveys and Asbestos Abatement Activities

A survey to determine the presence of ACM prior to building demolition is required by the NYSDOL and the U.S. Environmental Protection Agency (USEPA). Parsons conducted this survey in two stages, assisted by NYSDOL certified asbestos contractors. The initial screening ACM survey was conducted by Environmental Health, Inc (EHI) of Sparta, New Jersey (EHI, 2008) and included a review of historical ACM abatement reports for work performed prior to 2003 at the TRCB facility. The EHI work scope also included a reconnaissance and visual inspection of the site buildings, to confirm prior ACM abatement activities and identify areas requiring sampling, in accordance with New York State Code Rule No. 56 (Code Rule No. 56) requirements.

The second stage ACM survey was conducted by Emteque Corporation (Emteque, 2009) and included bulk material sampling and analyses for ACM content, in accordance with the sampling recommendations provided in the EHI report. The results of this survey formed the basis of the asbestos abatement bid package during the engineering design phase. The Emteque ACM survey was limited to accessible areas of the site buildings, including exterior roofs, interior ceilings, floors, piping and other surfaces. The survey did not include collection of potential ACM samples that were only accessible via destructive sampling techniques, such as areas within pipe chases or behind building walls or multiple flooring layers. A formal report of the asbestos survey and its findings was submitted to Chevron EMC under separate cover in January 2009.

3.3 PROJECT PERMITTING AND REGULATORY COMPLIANCE

3.3.1 Overview

The Former TRCB Facility Sitewide Building Demolition and ACM Abatement project was subject to review and approval by multiple state and local agencies and authorities. This section summarizes the various agency requirements, and the compliance actions completed by Chevron EMC and the project team.

3.3.2 Stormwater Pollution Prevention Plan (SWPPP)

The project demolition activities required preparation and implementation of a SWPPP, in accordance with the NYSDEC State Pollution Discharge Elimination System (SPDES) General Permit No. GP-0-10-01.

3.3.3 NYSDEC General Permit

A NYSDEC General Permit was required for the demolition project because the project's overall construction activities included total soil disturbance of approximately three (3) acres and involved soil disturbances of less than one (1) acre in individual areas at a time (PODS) where the NYSDEC has determined that a SPDES permit is required for stormwater discharges based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to surface waters of the State.

Requirements for coverage under the Construction Stormwater General Permit No. 0-10-001 included the following:

1. Preparation of a project-specific SWPPP in accordance with Part III of the General Permit (See Appendix D)
2. Review and approval of the project-specific SWPPP by the Town of Fishkill [local municipal separate stormwater sewer system (MS4)].
3. Submittal of a Notice of Intent (NOI) form and the local MS4's approval letter to the NYSDEC Bureau of Water Permits in Albany, New York.

3.3.4 Review of the SWPPP by Town of Fishkill

Upon completion of the SWPPP, it was reviewed and accepted by the local Municipal Separate Storm Sewer System (MS4), the Town of Fishkill (Mr. John Andrews) prior to submitting the Notice of Intent (NOI) to NYSDEC. The signed MS4 SWPPP Acceptance form was also submitted along with the NOI (See Appendix D).

3.3.5 Notice of Intent (NOI)

An NOI and the signed MS4 SWPPP Acceptance form were submitted five business days prior to the start of construction/demolition activities. Construction started after Chevron received acknowledgment of the NOI from NYSDEC and consistent with the conditions contained in the acknowledgment.

3.3.6 Proper Operation and Maintenance

The permitee (Chevron EMC) was obligated to properly operate and maintain all facilities and systems which were used to achieve compliance with the conditions of the General Permit. Chevron EMC achieved compliance of the General Permit by using Stormwater Management Controls (SMCs) and performing inspections and maintenance of the SMCs to ensure that the controls were operating properly. SMCs utilized at the site included:

- Erosion and Sedimentation Controls
- Silt Fencing
- Gravel Catch Basin Sediment Filters and Sediment Control Snake Bags

- Dust Control
- Straw Bales
- Stabilized Construction Site Entrance/Exit
- Staging Area for Stockpiles
- Best Management Practices (e.g., puncturing holes in demolished building basements to allow water accumulation from rain events to drain off or fill basements with rubble to minimize accumulation.)
- Permanent Control Measures (e.g., site regrading and stabilization in areas that were disturbed during demolition activity.)

Inspections of SMCs were performed by a NYSDEC Certified Erosion and Sediment Control Inspector (Ed Ashton, Parsons) who worked under a New York State Professional Engineer (P.E.) License (Craig F. Butler, P.E., Parsons) and maintenance of SMCs were performed by certified SWPPP Construction Contractors (Brandenburg Industrial Services and/or Stoneledge Landscaping Services, Inc.) under the direction of NYSDEC Certified Erosion and Sediment Control Inspector/New York State P.E.

3.3.7 Termination of Coverage

Upon completion of demolition project (Estimated 2015) and all stormwater discharges from construction activities have been eliminated (meaning that all disturbed soils have been finally stabilized and all temporary erosion and sedimentation control measures have been removed); a Notice of Termination (NOT) will be completed and submitted to NYSDEC for approval.

3.3.8 Recordkeeping and Training

Chevron retained a copy of the NOI, NOI Acknowledgment Letter, SWPPP, Town of Fishkill SWPPP Acceptance form, inspection reports, and training certifications associated with the TRCB Facility Demolition Project and will retain all documents until five (5) years after the site is stabilized (Phase 2).

3.4 BUILDING MATERIALS SAMPLING PROGRAM

A Field Sampling program was conducted as part of the pre-demolition work activities on this project. The objectives of the sampling program were to determine the appropriate handling and disposal procedures that would be required for various building materials suspected of containing potentially hazardous or toxic substances that are regulated under various environmental programs. The specific materials tested included lead based paint (LBP), mercury (Hg), and PCBs.

A Summary Report (Parsons 2010) was prepared that described the sampling methods, procedures and analytical results used in determining the characteristics of various building materials that would potentially be encountered during the upcoming Sitewide Buildings Demolition Project at the former TRCB facility. Samples were collected to establish Toxicity Characteristic Leaching Procedure (TCLP) concentrations for lead based paint (LBP) in certain building materials, and for Hg that may be present in exhaust hoods and vents. In addition, window caulking material from representative buildings was sampled for PCB content.

Sampling was performed by Parsons' personnel between March 22 and April 7, 2010.

3.4.1 Sampling Equipment and Analyses for TCLP-Lead Analyses

On March 22, 2010, five buildings were sampled for TCLP analysis to assist in characterizing the materials to determine proper disposal alternatives. The buildings selected for this sampling were based on collecting samples from the various building groups from each construction type.

Forty-six of the sixty-three (63) buildings/structures at the Beacon site were scheduled to be demolished. Of the forty-six structures, three general types of buildings existed. They were:

- 28 buildings composed mainly of unpainted outer brick walls, with painted interior walls composed of concrete, masonry, brick and/or clay block.
- 4 buildings composed of painted concrete or masonry outer walls, with painted interior walls composed of concrete, masonry, brick and/or clay block.
- 14 metal buildings.

Metal components of demolished buildings were to be recycled; and drywall materials were planned to be removed as general construction debris; so these materials were not included in this sampling effort. Concrete, masonry, brick and/or clay block materials may be used as fill on-site following building removal and TCLP testing was required because of the potential of lead-based paint having been used on these surfaces in the past.

Ten percent of each building type was sampled for TCLP – lead concentrations.

Three buildings were chosen as representative of structures composed of unpainted brick exterior with painted interior walls made of materials such as clay block (CB), masonry block (MB), brick (BR) and concrete (CT):

- Building 29
- Building 50
- Building 38

Two structures were chosen as representative of those buildings composed of painted exterior materials, such as masonry block, brick and concrete with painted interior masonry walls:

- Building 67 (interior)
- Building 68 (exterior)

3.4.2 Sampling Procedures

Fourteen (14) total composite samples were collected from the representative structures. The following procedures were employed in performing the TCLP sampling:

- Exterior walls of the structure were inspected and representative walls that contain paint were sampled. A minimum of two areas of the structure were sampled and composited into one sample for analysis.

- Interior walls of the structure were inspected and each type of painted substrate was sampled. Samples were collected using the following guidelines.
- Sample locations were clearly identified in the field logbook and on a floor plan; the location was marked with a piece of duct tape labeled with a unique sample ID number. Composite samples were identified by adding a letter (A, B, C, etc.) for each individual location.
- Using a hammer and chisel, fragments of the substrate, including the corresponding paint layer(s), were removed.
- During the chipping process, the sampling area was wetted down using distilled water from a spray bottle to control dust, as necessary.
- The building material fragments were placed into a clean resealable bag (i.e., Ziplock™). The sample identification number was written on each sample container.
- The sample bag was placed into a clean Ziplock™ bag, then both of these into a third Ziplock™ bag so the sample was triple-bagged and ready for crushing (performed by laboratory).
- Samplers wore disposable powderless nitrile gloves while handling the sample. Gloves were changed between each sample. The hammer, chisel, and other sampling tools were wiped clean with a disposable towelette between each sample.
- A photograph was taken of each sample location.
- The chain-of-custody (COC) form was completed; samples were packaged and shipped to the laboratory for analyses.
- Proper Personal Protective Equipment (PPE) was worn by each sampler, including hard hat, safety glasses, and safety shoes. Half-face, negative air respirators were available for use at the sampler's discretion; samplers possessed medical clearance and fit tests to use such respirators.

3.4.3 Laboratory Analyses

Lancaster Laboratories of Lancaster, Pennsylvania, performed analyses to establish TCLP lead levels using the USEPA Method SW846-6010B. Concentrations of lead in the composite building material samples ranged from below the limit of detection (less than 0.0069 milligrams per liter [mg/L]) to 6.11 mg/L. The 6.11 result was collected in a composite brick sample from Building 29.

Follow-up Sampling

In order to confirm the lead content in the composite sample of brick from Building 29, a second set of bulk samples were collected.

The three separate sampling areas of the original brick composite were re-collected and sent for individual analyses to establish any area of lead concern. On April 7, 2010, one sample was collected at each of the following locations:

- Basement garage area, red painted brick (Sample ID: BR-29-2)

- Near west exterior door, 1st floor, with white / yellow / green painted brick (Sample ID: BR-29-3)
- At west wall near overhead door in 1st floor garage area; tan / gray paint on brick (Sample ID: BR-29-4)

Samplers noted that an excessive amount of paint may have been included in the representative sample BR-29-4, as the brick material was difficult to break off; a greater percentage of paint may have been incorporated in the sample than is actually present.

Laboratory analyses of the three brick samples indicated lead content ranging between 0.205 and 4.53 mg/L. The EPA threshold for lead in construction debris is 5.0 mg/L. The individual painted brick samples from Building 29 were beneath this limit.

3.4.4 Recommendations

Based on the representative sampling performed and TCLP - lead analyses, building materials including brick, concrete, concrete block and clay block, were determined to be usable as on-site fill following building demolition.

3.4.5 Sampling Equipment and Procedures for Mercury Sample Collection Activities

On March 23, 2010, wipe sampling activities to determine mercury concentrations were conducted at exhaust hoods and roof vents as identified by Chevron personnel familiar with former building activities. Samples were collected from exhaust hoods in three buildings (Buildings 38, 39 and 65), and from roof vents in two buildings (Buildings 39 and 65).

Prior to wipe sampling, each identified hood and vent area was screened using a Jerome 431-X Mercury Vapor Analyzer to verify any residual mercury that may have been present. The analyzer received its annual calibration on January 8, 2010. The instrument was also regenerated and zeroed prior to use.

Chevron personnel identified rooms containing exhaust hoods suspected of potentially containing mercury. In some rooms, two separate exhaust hoods were present. In these instances, each hood was sampled using both the Jerome instrument and wipe sampling. Roof vent samples were collected from the five roof vents located on top of Building 39 and five randomly selected roof vents on top of Building 65.

The procedures and specifications for conducting mercury sampling within structures located at the Beacon site were as follows:

- Wipe samples for mercury were collected from the following locations at the Beacon facility.
  - Building 38:
    - Room 321 from laboratory hood area (2 hoods).
    - Room 333 from laboratory hood area (2 hoods).
    - Room 421 from laboratory hood area (2 hoods).
    - Room 432 from laboratory hood area (2 hoods).

- Building 39, Room 142 from laboratory hood area (2 hoods).
- Building 65:
  - Room 113 from laboratory hood area.
  - Room 207 from laboratory hood area (2 hoods).
  - Room 305 from laboratory hood area.
  - Room 313 from laboratory hood area.
- Roof vents:
  - Five samples from the roof vents of Building 39.
  - Five samples from the roof vents of Building 65.

- Prior to wipe sample collection, the interior airspace of each hood and vent area was screened with the Jerome analyzer to screen for the presence of airborne mercury vapor.
- Mercury samples were collected utilizing wipe sampling techniques. The following equipment was used for collecting wipe samples:
  - Paper 3 3/8 in. x 4 ¾ in. (103.42 square centimeters, or 16.03 square inches) template supplied by the lab (one for each wipe).
  - Powderless nitrile gloves.
  - Sterile, wrapped gauze pad (3 in. x 3 in.).
  - Deionized water.
  - Glass sample containers.
- The gauze pad was soaked with deionized water (supplied by laboratory) and excess squeezed out immediately before the collection of each sample.
- Surface interference (i.e., dirt, paint chips, bugs, and etc.) was recorded in the field log-book.
- A flat representative interior surface inside each hood or vent was accessed for collection of the wipe sample.
- Wearing a new pair of disposable nitrile gloves, the sampler wiped the entire sampling area of the template once in a horizontal direction and once in a vertical direction, applying moderate pressure. The entire area was wiped so that all material was picked up. The gauze pad was placed into a sample container upon completion of wipe.
- The sample ID number was written on a piece of duct tape and placed at the sample location. A photograph was taken of each location.
- A blank sample was collected in order to ensure the quality of the data. The wipe blank was submitted by wearing new gloves, then wetting a gauze pad with the deionized water, opening pad and placing the pad into the sample container.

3.4.6 Analyzer results

The Jerome analyzer was used at each hood and vent location to screen the area and detect any residual mercury vapors present. Readings taken at each location indicated 0.00 milligrams per cubic meter (mg/m^3) of mercury or Hg, confirming that no mercury vapors were present.

3.4.7 Laboratory Analyses

Lancaster Laboratories of Lancaster, Pennsylvania, performed analysis of wipe samples to establish mercury levels using the USEPA Method SW846-7471A. Concentrations of mercury in the wipe samples ranged from below the limit of detection (less than 0.0069 micrograms [µg]) to 0.428 µg. Analysis of the blank submitted was acceptable.

EPA uses a threshold of 10,000 µg (or 10 milligrams [mg]) in regulating mercury disposal. Analysis of wipe samples resulted in concentrations of mercury below this level.

3.4.8 Recommendations

Based on the representative sampling performed, showing no mercury levels present in wipe samples in exceedence of the EPA limit, the roof vents and exhaust hoods in place at the Beacon site were removed and disposed without regard for mercury contamination.

3.4.9 Sampling Paint Chips for Lead Content

As part of the pre-demolition building preparation process, peeling paint was removed from all site buildings planned for demolition. This served to eliminate the potential risk associated with LBP exposures and to enhance wall preparation in advance of plasticizing wall surfaces in ACM abatement work areas.

In order to determine the appropriate disposal method for the paint chips, representative samples were collected and shipped for laboratory analyses. The paint chips were collected from certain buildings after the contractor collected and bagged loose paint from the interiors of six buildings. On April 21, 2010, paint chips were sampled and sent for TCLP analyses Buildings from which the chips were taken include:

- Building 1
- Building 27
- Building 29
- Building 51
- Building 57
- Building 68

Samples were taken from large garbage bags containing paint chips to determine the proper disposal method. Each bag contained paint chips of varying colors from locations throughout a building; a representative grab sample was taken from each bag. The sizes of the chips varied, but were generally less than one or two square inches each.

The sampler used a new pair of powderless nitrile gloves to collect each sample. A bag of paint chips was unsealed or cut open and a few random handfuls of chips were removed and placed in a Ziplock® bag. Sample bags were packaged and shipped to the laboratory for analyses.

3.4.10 Laboratory Analyses

Lancaster Laboratories of Lancaster, Pennsylvania, performed analyses to establish TCLP lead levels using the USEPA Method SW846-6010B. Concentrations of lead in the paint chip samples ranged from 0.0162 mg/L to 16.8 mg/L.

The EPA threshold for lead in construction debris is 5.0 mg/L.

3.4.11 Recommendations

Based on the representative sampling performed and TCLP - lead analyses, bags containing paint chips collected from the six buildings were handled and disposed as lead-containing waste. Although some samples resulted in lead concentrations below the EPA standard, it was deemed prudent to treat all collected chips as lead-containing, since each bag contained an unknown mixture of several types of paint, some of which were likely to contain elevated levels of lead.

3.4.12 PCB Caulk Sampling Procedures and Analyses

3.4.12.a PCB Caulk and Building Material Sampling Procedures and Analyses

Due to the age of virtually all the buildings on site, there was concern regarding the use of PCB-containing substances in the window caulk and other building materials used in the buildings construction. As such, a robust sampling and analysis program was completed prior to the demolition of any site buildings, to identify potentially PCB-contaminated materials and develop plans for properly handling and disposing of these materials. This sampling program included collection and analyses of over 200 caulk and building material samples (e.g. roofing and wallboard) from over twenty (20) buildings. Based on the results of this sampling and analysis program, there were only two buildings on site that were determined to have building materials with PCB concentrations greater than 50 ppm, the regulatory level requiring special handling and disposal procedures. These two buildings were Building 74 in POD A, and Building 50 in POD H.

3.4.12.b PCB Abatement Procedures for Buildings 74 and 50

Two (2) of the buildings on the former Texaco Research Center (TRCB) in Beacon, NY had polychlorinated biphenyl (PCB) containing material. The caulk surrounding the frame of two doors in Building 74, one on the south side and one on the west side, contained PCBs. In Building 50, there were a total of 193 air conditioning vents that are also surrounded with PCB-containing caulk. Caulk removal procedures for each building are listed below.

3.4.12.c Building 74:

- Remove both doors.
- Remove the caulking between the door frame and the immediately surrounding concrete.
    - Remove the first layer of concrete surrounding the door.
- Containerize all materials removed for transportation and disposal as hazardous waste.

3.4.12.d Building 50:

- Remove each vent and the surrounding caulking.
- Remove first layer of brick or concrete (Material surrounding the vent opening).
    - Layer thickness varies by vent location.
- Scrape off the remaining caulk on vent.

3.4.12.e General Notes for Procedure

Proper dust control actions were followed during this PCB abatement procedure, as well as adequate health and safety measures. Such measures included the use of a respirator and other regulated personal protective equipment (PPE). PCB-containing material at a concentration of 50 ppm or greater is considered a hazardous waste and were containerized and staged separately from Construction and Demolition (C&D) debris waste.

3.5 COMMUNITY AIR MONITORING PROGRAM (CAMP)

Building demolition activities have the potential to generate large quantities of airborne matter, if not properly controlled. Due to the proximity of the Former TRCB to residential areas adjoining the property, a CAMP was developed and implemented during the course of the project. The Former TRCB CAMP was prepared in accordance with the New York State Department of Health (NYSDOH) Generic Community Air Monitoring Plan, and with NYSDEC Technical Assistance Guidance Memorandum (TAGM) No. 4031entitled "Fugitive Dust Suppression and Particulate Monitoring Program at Inactive Hazardous Waste Sites".

The CAMP describes the air quality monitoring requirements that were performed during the demolition of buildings at the Former Texaco Research Center Beacon, located in Glenham (Beacon), New York. The limits of the building demolition were set forth on the Demolition Site Plan (Attachment 1).

The purpose of the CAMP was to conduct real-time air monitoring to confirm that the community was not adversely impacted during activities associated with the demolition activities. The CAMP was not intended for use in establishing action levels for worker respiratory protection. Rather, its intent was to provide a measure of protection for the downwind community (i.e., potential offsite receptors and onsite workers not directly involved with the subject work activities). The CAMP established action levels for airborne particulates that may trigger control actions. The action levels specified in the CAMP required increased monitoring, corrective actions to abate emissions, and/or shutdown of work activities when action levels were exceeded.

The primary means to control dust concentrations during the building demolition was through the use of "dust bosses" – high volume water misters that moisten the dust particles and cause them to sink to the ground. Water hoses were also used to wet down building sections to prevent dust generation from occurring. Constant visual surveillance of building demolition activities was also performed, and any adjustments needed in the utilization of the dust bosses or water hoses were made, in a proactive manner to minimize dust generation and/or migration.

This CAMP did not address air quality concerns specifically related to the abatement of the potentially asbestos containing materials (PACM). Separate air quality monitoring during the removal of PACM was required in accordance with the Asbestos Abatement Plan and utilized different equipment and procedures. Air monitoring during building demolition activities consisted of meteorological monitoring and real-time air quality monitoring for airborne particulates. Airborne particulates were monitored using particulate air monitors equipped with data loggers to measure and record real-time airborne particulate concentrations in mg/m3. The particulate monitoring was performed using real-time monitoring equipment capable of measuring particulate matter less than 10 micrometers in size (PM-10) and capable of integrating

over a period of 15 minutes (or less) for comparison to the airborne particulate action levels. The monitoring equipment was calibrated at least daily in accordance with the manufacturer's calibration requirements. The equipment was also equipped with an audible alarm to indicate exceedances of the action levels.

As a means to keep the public informed during building demolition activities, CAMP data logger readings were downloaded each week and posted on the facility public access web site at www.texacobeaconinfo.com. Representative CAMP data logging graphs are provided in Appendix E.

3.6 MAPLE STREET PRE- AND POST-DEMOLITION BUILDING SURVEYS

Demolition of Building 67 near the eastern border of the Former TRCB property, adjoining Maple Street, raised the concern of potential impacts to nearby residential and commercial properties. These concerns were heightened by the extremely thick concrete walls (up to 5 feet) used to construct portions of Building 67, and the associated noise, dust and vibrations generated during the building demolition.

Parsons retained the services of Protect Documentation Services, Inc., to conduct a voluntary pre- and post-demolition inspection of structures adjacent to, or in the immediate vicinity of the project in proximity to Maple Street. The purpose of this inspection was to provide property owners with appropriate information by establishing existing building conditions before any activity begins in this area and after it is concluded.

The buildings condition survey consisted of a narrated digital video and high resolution digital photography with date stamps. The video narration also included details of cracks, defects or unusual conditions in all accessible areas. The survey also utilized ground vibration monitors that were installed along the Former TRCB eastern property boundary, next to the Building 67 location. These monitors provided real time data to alert site workers in the event that demolition activities were generating ground vibrations approaching pre-determined action levels.

Noise mitigation was accomplished by staging the building demolition such that the building wall facing Maple Street (the east wall) was left in place to serve as a sound barrier while the rest of the building walls were demolished. The large hydraulic hammers used to demolish the building walls also generated much less noise than alternative demolition methods, such as jack hammering.

In addition to the dust suppression methods previously described, as a further protective measure, large "privacy" screen/curtain sections were placed along the eastern property fence line every day that demolition activities took place at Building 67. These screens were held in place by man-lift machines to raise them from ground level to the height above the building roofs, and served as both a visual and partial dust screening barrier.

The data generated from the ground monitoring sensors during the Building 67 demolition indicated that the magnitude of vibrations recorded at the property line was consistently well below the action levels associated with any potential structural impacts to nearby buildings. In addition, there were no complaints received from local residents related to any vibration or noise issues during the period of Building 67 demolition activities. Following the completion of Building 67 demolition work, post-demolition surveys were conducted at the buildings and residences who opted to conduct them. The post-demolition surveys of these buildings replicated the pre-demolition work, and copies of these surveys were provided to the building owners for

their records. A number of the building owners declined to have the post-demolition surveys performed on their buildings since they apparently were satisfied that there had been no adverse impacts to their building(s) due to the Building 67 demolition work. Electronic copies of the pre- and post-demolition building surveys and ground vibration monitoring data are provided in Appendix J.

SECTION 4

BUILDING ASBESTOS ABATEMENT AND DEMOLITION ACTIVITIES

4.1 OVERVIEW OF SITE BUILDING ASBESTOS CONTAINING MATERIAL ABATEMENT AND BUILDING DEMOLITION ACTIVITIES

The overall scope of work consisted of providing construction services for the demolition and disposal of forty-six (46) buildings and their contents, facility electrical and mechanical systems, outdoor air handling units, pipe racks, outdoor electrical distribution equipment, out of service ASTs, and ancillary site facilities. The site buildings were grouped into a series of "pods" to facilitate implementation of SWPPP elements (as described in Section 3),and to sequence the ACM abatement and building demolition work to maintain adequate spacing between these two activities at all times.

The initial project plan for conducting the Sitewide ACM Abatement and Building Demolition work at the Former TRCB facility specified the following pod sequencing:

- Former Washington Avenue Tank Farm and Back 93-Acre areas;
- Designated Pod G
- Designated Pod A
- Designated Pod C
- Designated Pod F
- Designated Pod E
- Designated Pod D
- Designated Pod H
- Designated Pod B

The general progression of work activities at each building consisted of reconnaissance and verification of building conditions and identification of any residual waste material and/or equipment that had not been previously handled. Concurrent with the reconnaissance activities, and in accordance with OSHA regulations, an "engineering survey" was performed in each building to identify potential safety exposures (e.g., utilities, fire hazards, fall hazards, etc.) and environmental issues (e.g., ACM, lead, mercury, PCBs, etc.). Brandenburg used an Engineering Survey form to document the results of the building reconnaissance efforts, and included such items as the building dimensions, structural features, utility status (active/inactive), and anticipated demolition methods. Copies of the Former TRCB engineering surveys prepared for this project are included in Appendix L.

Utility disconnection and/or inactivation work identified during the engineering surveys was performed at each building. The objective of the utility deactivation task was to achieve "zero energy" conditions to prevent inadvertent harm to any site workers and/or visitors during the course of the project. Once all utilities or other potential energy sources were successfully

mitigated at each building, a walkthrough and visual inspection was completed by project team members from Brandenburg, Chevron and Parsons, and all parties would indicate concurrence by signing the building "Zero Energy Verification Form" (see copies in Appendix L).

Once zero energy conditions had been verified at each building, the next step in the process was to perform "soft demolition" activities in preparation for subsequent ACM abatement and final demolition work. For the most part, soft demolition activities were very labor-intensive, with worker efforts supplemented by smaller utility vehicles, such as skidsteers (aka "Bobcats") and Lulls (Telehandler forklift machines). Soft demolition activities consisted of the following:

- Salvaging equipment and materials for recycling and/or reuse;
- Segregating materials for subsequent recycling or disposal;
- Removal of any universal waste items not addressed in the pre-demolition work phase;
- Removal of non-ACM flooring, floor coverings, block walls, drywall, hard ceilings, drop ceilings, doors, windows and non-structural walls; and
- Purging of any building process piping, including coolants, and refrigerants.

4.2 ACM ABATEMENT ACTIVITIES

ACM abatement activities were conducted in accordance with the Asbestos Abatement Work Plan and in compliance with the NYSDOL Industrial Code Rule No. 56 (ICR 56) regulations. The standard progression for ACM abatement is for all friable ACM in a building to be abated first, since it constitutes the greater potential to become airborne and creating a potential exposure hazard. As such, the procedures for isolating, handling, packaging, transportation, and disposal of friable ACM are much more robust than for non-friable ACM.

Brandenburg was responsible for submitting the applicable asbestos project notifications to NYSDOL and USEPA, including the associated fees. The typical sequencing for ACM removal activities was as follows:

1. Brandenburg submitted asbestos project notifications to NYSDOL and USEPA;
2. The ACM project submittal was reviewed and approved by NYSDOL and a permit was issued, specifying the ACM project timeframe and other conditions;
3. Brandenburg prepared task specific work permits and Job Loss Analyses forms for review and approval by CEMC and Parsons;
4. Preliminary work was conducted, including setting up the decontamination trailer in proximity to the building,
5. Work zones were established with applicable critical barriers and negative air pressure atmospheres were maintained;
6. ACM abatement work commences and required OSHA personal air monitoring was performed throughout the removal project;
7. ACM waste (e.g. floor tiles, piping insulation, ceiling tiles, etc.) was removed and placed into appropriate containers provided by CEMC;
8. ACM removal proceeded until completion and final air clearance readings by the independent ACM project monitor (Emteque) met acceptance criteria;

9. Critical barriers were removed and work area enclosures were disassembled; and
10. Decontamination trailer was disconnected from the building and demobilized.

4.2.1 ACM Abatement Variance Projects

Due to the age and characteristics of the various site buildings, it became necessary to utilize alternative ACM abatement procedures to complete the work in a safe and efficient manner. ACM was encountered in a number of buildings in locations that necessitated variances from the standard abatement procedures and sequencing specified in NYS Code Rule No, 56. An example of this condition was seen in Building 1, where a layer of weatherproofing material embedded with ACM, was sandwiched between multiple built-up floor layers that had been installed during the various building renovation and remodeling phases over the building's lifetime. This weatherproofing layer extended across the entire first floor of the building, and removal of the floor in pieces to access the ACM would have created an unsafe structural condition. The project team of Chevron, Brandenburg, Parsons, and Emteque, worked together to develop a procedure to demolish the building with the flooring material intact, and handle the building debris as non-friable ACM waste.

Table 4.1 below summarizes all of the buildings where variance procedures were developed to address the unusual characteristics of the building construction and ACM installation. In accordance with NYS Code Rule No. 56 requirements, each of these variance requests were submitted for review and approval by NYSDOL prior to commencing the work. Copies of the approved variance requests for the applicable buildings are provided in Appendix L.

Building No.	ACM Variance Procedure Utilized	NYSDOL Variance No.	Variance Date
1	Controlled demo of non-friable ACM; 22,000 sq. ft of ACM tar paper material	11-0792	08/18/11
28	Controlled demo of non-friable ACM; 240 sq. ft. of non-friable vapor barrier and mastic	12-0777	07/19/12
30	Controlled demo of non-friable ACM; 1,750 sq. ft. of non-friable mastic and vapor barrier	12-0137	02/13/12
38	Controlled demo of non-friable ACM; 1,112 sq. ft. non-friable vapor barrier and mastic	12-0136	02/13/12
39	Controlled demo of non-friable ACM; 596 sq. ft. non-friable vapor barrier and mastic	12-0135	02/13/12
40	Controlled demo of non-friable ACM; 435 sq. ft. non-friable vapor barrier and mastic	12-0134	02/13/12
50	Sequential abatement of friable and non-friable ACM to access concealed areas	12-0537	05/25/12
50	Controlled demo of non-friable ACM; 7,500 sq. ft roof panels; 12,555 sq. ft of non-friable mastic vapor barrier	11-1398	01/05/12
65	Controlled demo of non-friable ACM; 3,500 sq. ft. non-friable vapor barrier and mastic	12-0133	02/13/12
67	Controlled demo of non-friable ACM; 1,000 sq. ft. non-friable flashing tar; 8,967 sq. ft non-friable roofing	12-0387	05/04/12

	membrane; 8,967 sq. ft of non-friable roofing tar		
70	Controlled demo of non-friable ACM; 8,500 sq. ft. of non-friable roofing tar	12-0388	05/04/12

4.3 BUILDING DEMOLITION PROCEDURES

Building demolition activities for each of the TRCB buildings for all buildings were conducted following the completion of ACM abatement work, except for the buildings where variance procedures were approved to allow concurrent ACM abatement and demolition activities. Final building demolition (aka "hard demolition") was primarily accomplished using heavy duty excavators outfitted with specialized demolition attachments, such as grapples, shears, and hydraulic hammers. Building demolition work started with sections of the roof being removed, and then progressing from the upper building floors down to the slab or basement level. Buildings were demolished in sections, starting at one end of the building and then continuing with the remaining sections until the building was completely demolished to the desired elevation. The overall objective of this project was to demolish each building to the lowest slab or basement level, so that subsurface soil and groundwater samples would be accessible by core drilling through the exposed building slab.

4.3.1 Special Conditions Encountered During Demolition in Each pod

In addition to the ACM abatement variance procedures described above, there were unique or challenging conditions encountered in each building pod during the course of building demolition. A summary of these conditions is provided in Table 4below:

Pod Designation	Building No	Condition Encountered
A	41	Additional ACM discovered
	67	Additional ACM discovered
	68	Additional ACM discovered
	74	PCBs detected in door caulk
C	1	Additional ACM discovered in building floor
	1	Additional ACM discovered in pipe rack on roof
	3	Additional ACM and universal wastes discovered
	5	Additional ACM discovered
	6	Additional ACM discovered; paint chips on interior wall
D	30	Additional ACM discovered
	37	Additional ACM discovered
	38	Additional ACM discovered; mercury discovered in floor drain traps
	39	Additional ACM discovered; mercury discovered in floor drain traps
	40	Additional ACM and universal wastes discovered
E	27	Additional ACM discovered
	28	Additional ACM and universal wastes discovered

Pod Designation	Building No	Condition Encountered
	29	Additional ACM discovered
	30	Additional ACM discovered
	65	Additional ACM discovered
	65	Water line reconfiguration
	70	Additional ACM and universal waste discovered
F	26	Additional ACM discovered in building and pipe rack
	29	Additional ACM discovered in ceiling
	55	Additional ACM discovered
G	54	Additional ACM discovered
	79	Additional ACM and universal waste discovered
G	36 / 42	Additional ACM discovered
H	50	Additional ACM discovered in building
	50	Additional ACM discovered in auditorium roof and walls
	50	Universal waste discovered

4.3.2 Buildings requiring special considerations and/or procedures

The characteristics of several buildings on site required heightened consideration be given to address the unique risks and challenges beyond the typical ACM abatement and demolition practices. These characteristics necessitated additional planning and implementation to develop procedures to mitigate the unique challenges of each building. In general, these procedures addressed structural integrity issues and potential impacts that could occur during building demolition activities.

These special consideration buildings were identified in the project contract documents, and the demolition contractor bore the primary responsibility to develop and implement the required mitigation plans. These plans were submitted to Chevron and Parsons for review, comment and approval prior to implementation. Review and approval of the plans was an iterative process, with the final approved procedures being included in the work plans and JSAs for the particular buildings.

Building No.	Condition(s) of concern	Special procedures implemented
3 and 6	Prevention of materials from entering Fishkill Creek	Design and installation of protective netting system on south face of buildings
26	Protection of overhead electric lines on south side of building	Installation of protective sleeves on electric lines during building demolition
50	Minimize disruption to nearby residents and pedestrian/vehicular traffic along Old Glenham Road	Development and implementation of procedures, such as establishment of dedicated viewing area in Building 50 parking lot

Building No.	Condition(s) of concern	Special procedures implemented
55	Protection of building earthen/rock basement wall on south side of building	Building demolition sequencing and area regrading to maintain integrity of basement wall
65	Protection of retaining wall and access road to WWTP on south side of building	Installation of heavy steel plates and scrap tires on WWTP access road to cushion debris falling during building demolition. Demolition sequencing to prevent damage to retaining wall
67	Minimize disruption and potential for structural impacts to residential and commercial buildings on Maple Street in proximity to building	Coordination of pre- and post-demolition buildings survey to document conditions; use of full height screening system for visual and dust control; demo sequencing to minimize noise impacts

4.4 SITE RESTORATION ACTIVITIES

At the conclusion of ACM abatement and building demolition activities in each of the designated pods, Brandenburg completed site restoration activities. The objective of these activities was to establish stable conditions at the site for the interim period between the "Phase 1" demolition (this project), and when the subsequent "Phase 2" site demolition activities are initiated. Phase 2 demolition work will include removal of most of the remaining site buildings, along with removal of the building slabs and basements, and site regrading. An important element of the Phase 2 demolition work will consist of crushing the stockpiled pieces of concrete and rubble debris that currently exist on site, along with additional hard fill materials that will be generated during the Phase 2 demolition work.

The primary areas addressed during the site restoration work included stabilization of remaining building elements (i.e. building slabs and partial basement walls left in place), seeding and grading of disturbed lawn areas, and implementation of erosion and sedimentation (E&S) control systems to achieve compliance with continuing SWPPP regulatory requirements. Brandenburg established a number of hard fill stockpiles for concrete, brick and block debris generated during building demolition activities. E&S measures utilized to control runoff from these stockpiles included silt fences, coir logs and "snake bags", as specified in the SWPPP. In addition, some of the hard fill material was used as structural backfill against partial basement walls, to maintain their structural stability in the interim period until phase 2 demolition work will be initiated.

Lawn areas on site that were disturbed during building demolition activities were graded to remove loose rubble and other coarse debris. Areas where ruts from heavy equipment were smoothed out, and then grass seed, starter fertilizer and hay mulch was applied in all of the previously disturbed areas. The objective of these efforts was to reestablish lawn areas that would minimize the potential for E&S problems, and could be maintained with standard lawn mowing equipment.

SECTION 5

WASTE MATERIAL HANDLING, TRANSPORTATION, DISPOSAL AND RECYCLING

5.1 OVERVIEW OF WASTE HANDLING, TRANSPORTATION, DISPOSAL AND RECYCLING ACTIVITIES

Waste handling, packaging, handling, transportation, disposal, and recycling activities were an important element of the Former TRCB facility Sitewide Building Demolition and ACM Abatement project. A great deal of planning and preparation went into the waste processing procedures for this project, and it involved participation from multiple parties. Although building demolition and ACM abatement are inherently waste generating activities, the overriding objectives of waste management plan for this project were to minimize the volume of waste materials to be transported and disposed of at off-site locations, and to maximize the amounts of materials to be recycled on-site and/or to be sent to off-site recycling facilities.

Waste materials generated during the pre-demolition project phase are as described in Section 2.3.1 of this report, and backup documentation for these wastes and recycled materials is provided in Appendix I. Representatives from various Waste Management facilities provided support services to Chevron and the project team over the course of the project, including assistance with waste characterization and profile preparation, waste container (e.g., rolloff boxes) staging, manifest preparation, truck transportation scheduling and dispatching, and specialty assistance.

5.2 WASTE HANDLING COORDINATION

Waste handling for this project was a coordinated effort between Brandenburg, Parsons, and Waste Management representatives on a daily and weekly basis. Based on the anticipated work activities identified in the two-week lookahead schedule, Brandenburg would communicate with Parsons regarding the amount and type of waste containers that would be required on site during that time period. The Waste Management dispatcher from their Model City, NY facility would then communicate with their Kingston, NY regional facility to deliver the required waste containers to the site and place them in the designated staging area. In addition, the Kingston facility driver would also enter the site working areas and relocate filled containers in staging area for subsequent transportation. The WM dispatcher would also coordinate with the various trucking companies to pick up the filled waste containers and transport them to the applicable waste facility.

5.3 MAJOR WASTE STREAMS GENERATED AND PROCESSED

The major waste streams generated during the Former TRCB Sitewide Building Demolition and ACM abatement project were as follows: Construction and Demolition (C&D) debris, non-friable ACM waste, and friable ACM waste. These three waste streams accounted for 826 manifested shipments, broken down as follows: 392 shipments of C&D debris totaling approximately 5,722 tons; 414 shipments of non-friable ACM debris totaling roughly 6,933 tons,

and; 21 shipments of friable ACM debris totaling approximately 117 tons. All three of these waste streams were transported to Waste Management's High Acres landfill facility in Fairport, NY (near Rochester). However, due to the different characteristics and regulatory requirements for the three waste categories, they were placed into separate areas designated within the High Acres facility that are designed and maintained to accept those waste streams.

Electronic copies of all waste manifests for the major waste streams are provided in Appendix I. Manifests were generated and signed by the Parsons representative delegated by CEMC, and the original generator copies were maintained at the Former TRCB facility for subsequent submittal to the CEMC Waste Coordinator in San Ramon, California. Signed copies of the Transporter and Disposal Site manifest forms accompanied each shipment from the Former TRCB site to the High Acres facility. Each shipment was weighed, and the weigh scale ticket, along with the signed Disposal Site copy of the shipment manifest was scanned and transmitted via e-mail to the Parsons site waste coordinator. The waste coordinator would then enter the manifest data into the Chevron EMC Essential Suite database tracking system. The last step of the waste coordination and document handling process consisted of transmitting copies of the original manifest Generator copies, along with the manifest "package" (Generator, Transporter and Disposal Site copies, and weigh scale tickets) for all waste shipments generated that week to the Chevron EMC Waste Coordinator in San Ramon.

5.4 MINOR WASTE STREAMS AND SPECIAL CLASS WASTES

In addition to the major waste streams, there were four other waste classes generated during the Former TRCB ACM Abatement and Building Demolition project, consisting of non-hazardous wastes, universal wastes, hazardous wastes, and recyclable used oil. A summary of these waste classes is listed in Table 5.1 below:

TABLE 5.1 SUMMARY OF MINOR WASTE STREAM SHIPMENTS

Waste Description	No. Shipments	Shipment Wt. (tons)	Shipment Wt. (lbs)
	Non-Hazardous Wastes		
Misc. Solid Waste (cardboard drum)	1	0.40	800
Auto Fluids	3	0.38	760
Oil Soaked Debris	2	0.975	1,950
Misc. Solid Waste (Metal/ Fiber Drums)	6	39.19	78,389
Non-Hazardous Cylinder	1	0.025	50
Soil contaminated w/ petroleum products (Metal drum)	1	0.050	100
	Universal Waste		
Aerosol Cans (Fiberboard drums)	1	0.40	800
Batteries (Fiberboard drums)	2	0.085	17
Fluorescent Lamps, Hg Devices (Cardboard containers)	6	1.33	2,655
	Used Oil (Non-Haz, Recyclable)		
Misc. Wastes (Metal, Fiberboard, Plastic Drums)	3	1.37	2741
	Hazardous Wastes		
Building Caulk w/ PCBs (Dedicated rolloff boxes)	2	19.054	38,108
Off-Spec Chemicals (Fiberboard and Plastic Drums)	13	2.96	5,927
Paint and Paint Related (Metal Boxes and Cartons, D008 waste)	1	6.0	12,000
Used Cylinders classified as Hazardous wastes	1	0.015	30
Soil Contaminated w/ Pb (D008 waste in dedicated rolloff boxes)	13	135.24	270,480
Total	**56**	**207.47**	**414,948**

5.5 RECYCLED WASTE STREAMS

As part of the "green demolition" planning for this project, Chevron desired to recycle as much of the building C&D debris as possible, to minimize off-site transportation and disposal volumes, as well as retain suitable materials on site for future uses. The recycled materials included large quantities of inert building materials, consisting of brick and concrete debris that was retained on site in various stockpiles for future use as hard fill materials. With the exception of Building 1, virtually all of the C&D debris consisting of brick and concrete was retained on site in several stockpile areas.

These stockpiles were placed in the following locations:

1. In the area south of the Building 50 footprint, extending to the area west of the Building 28/29/30 complex along the west access road;
2. The area west of the Boiler House Tank Farm, adjacent to the Former Church property, and;
3. In the former Truscan Building area located between the Building 1 and the Building 51 footprints.

The total volume of concrete debris contained in these stockpiles is approximately 11,540 cubic yards, based on quantity takeoff measurements from the TRCB building as-built construction drawings. The total volume of brick material contained in these stockpiles is approximately 4,640 cubic yards, also determined based on quantity takeoff measurements from the facility as-built construction drawings.

In accordance with the project specifications, all of these stockpiled materials consist of hard fill debris that was broken into sizes of 2-feet or less in the largest dimension. The future plans for these materials are to bring in a portable debris crushing machine to reduce the brick and concrete pieces to ½ -inch diameter or smaller pieces to be used in regrading the site to accommodate future redevelopment. The remaining concrete foundation and subsurface slab sections will also be removed at that time and re-sized for use as hard fill materials.

In addition to the concrete and brick C&D debris, there was one other recycled material from the former Building 37 fuel storage vault area. The material was the pea gravel backfill that was used as backfill material for the former underground storage tanks that were removed in 2003. This backfill material was left in place when the USTs and associated piping were removed in 2003, and the analytical testing of the material indicated that all chemicals of concern were below detectable concentrations. The pea gravel backfill material was removed from the Building 37 vault and placed into a series of "super sacks" by the contractor responsible for the on-site dam rehabilitation project. The gravel-filled super sacks were then placed into Fishkill Creek, just upstream of the dam, to serve as water level control structures during the dam rehabilitation construction. Following completion of the dam rehabilitation construction, the super sacks were removed from Fishkill Creek and the pea gravel contents were then used to fill the erosion and sedimentation control filter bags (a.k.a. "snake bags") that were placed throughout the site, to meet the requirements of the Stormwater Pollution Prevention Plan (SWPPP). The total volume of pea gravel material removed from Building 37 and ultimately retained on site for the SWPPP control measures was 1,035 cubic yards.

APPENDICES ON CD

APPENDIX A	BUILDING DEMOLITION PERMITS
APPENDIX B	REVISED DEMOLITION SCOPE OF WORK
APPENDIX C	LETTER OF RESOLUTION BETWEEN CHEVRON USA, NYSDEC AND NYSOPRHP
APPENDIX D	STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR CONSTRUCTION ACTIVITY
APPENDIX E	COMMUNITY AIR MONITORING PROGRAM (CAMP)
APPENDIX F	PROJECT PHOTOGRAPHS
APPENDIX G	MEETING MINUTES
APPENDIX H	DAILY FIELD REPORTS
APPENDIX I	WASTE MANIFESTS
APPENDIX J	PRE- AND POST-DEMOLITION BUILDING SURVEYS OF MAPLE STREET PROPERTIES
APPENDIX K	SAFETY
APPENDIX L	ASBESTOS CONTAINING MATERIAL DOCUMENTS