

ORTLOFF ENGINEERS, LTD.  
 Summary  
 of  
 RECENT CLAUS SULFUR RECOVERY PROJECTS

YEAR	PLANT OWNER & PLANT LOCATION	CONTRACTOR(S)	SIZE LT/D	PROJECT DESCRIPTION
1988	Diamond Shamrock Refining Company McKee Refinery Sunray, TX	Ortloff Engineers, Ltd. The Pro-Quip Corporation	50	Skid-mounted Claus Sulfur Recovery System, SCOT tailgas cleanup system, and a waste heat recovered tailgas incineration system. Provided conceptual design package, process engineering for project, and startup assistance.
1989	Conoco, Inc. Ponca City Refinery Ponca City, Oklahoma	Ortloff Engineers, Ltd. The Pro-Quip Corporation	20	Skid-mounted Claus Sulfur Recovery System with a tailgas incineration system. Provided conceptual design package and process engineering for project.
1990	Freeport Sulfur Company Mishraq Frasch Mine Mosul, Iraq	Ortloff Engineers, Ltd. The Pro-Quip Corporation Hawi Brothers	45	Skid-mounted Claus Sulfur Recovery System with a waste heat recovered tailgas incineration system to recover sulfur from a Frasch sulfur purification system off-gas stream. Provided conceptual design package and process engineering for project.
1991	Amerada Hess Corporation Tioga Gas Plant Tioga, North Dakota	Ortloff Engineers, Ltd. Litwin Engineers & Constructors, Inc. Ref-Chem Corp.	225	Claus/CBA Sulfur Recovery System with waste heat recovered tailgas incineration. Provided conceptual design package, process engineering for project, and startup assistance.
1991	Coastal Derby Refining Company Coastal Derby Refin. Wichita, Kansas	Ortloff Engineers, Ltd. The Pro-Quip Corporation	20	Skid-mounted Claus Sulfur Recovery System with a tailgas incineration system. Provided conceptual design package, process engineering for project, and startup assistance.
1991	Freeport-McMoRan Oil & Gas Company Main Pass Block 299 Offshore Louisiana	Ortloff Engineers, Ltd. The Pro-Quip Corporation Petro-Marine Engineering	50	Skid-mounted/modular Claus Sulfur Recovery System with a tailgas incineration system and related upstream processing units installed on an offshore platform. Provided conceptual design package, process engineering for project, and startup assistance.
1991	Hawaiian Independent Refining, Inc. HIRI Refinery Ewa Beach, HI	Ortloff Engineers, Ltd. The Pro-Quip Corporation E. H. Black Co.	23 40	Skid-mounted Claus Sulfur Recovery System, SCOT tailgas cleanup system, and waste heat recovered tailgas incineration system. Provided conceptual design package, process engineering for project, and startup assistance.

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1992	Fina Oil & Chemical Company Big Spring Refinery Big Spring, Texas	Ortloff Engineers, Ltd. Fluor Daniel, Inc. The Pro-Quip Corporation	60	Skid-mounted Claus Sulfur Recovery System, SCOT tailgas cleanup system, and waste heat recovered tailgas incineration. Provided conceptual design package, process engineering for project, and startup assistance.
1992	Frontier Refining Company Frontier Refinery Cheyenne, Wyoming	Ortloff Engineers, Ltd. The Pro-Quip Corporation	65	Skid-mounted Claus Sulfur Recovery System. Provided conceptual design package, process engineering for project, and startup assistance.
1993	Amoco Oil Company Salt Lake City Ref. Salt Lake City, Utah	Ortloff Engineers, Ltd. The Pro-Quip Corporation The Pritchard Corporation	15	Skid-mounted Claus Sulfur Recovery System. Provided conceptual design package, process engineering for project, and startup assistance.
1993	Fina Oil & Chemical Company Port Arthur, TX	Ortloff Engineers, Ltd. Fluor Daniel, Inc.	160	Reviewed detailed design work for a Claus Sulfur Recovery System being constructed using the Schedule A package prepared previously by Ortloff.
1993	GPM Gas Corporation Goldsmith Gas Plant Goldsmith, Texas	Ortloff Engineers, Ltd. Ref-Chem Corporation	110	Converted Claus Sulfur Recovery Unit to the CBA Process to achieve 98.5% recovery performance. Provided conceptual design package, process engineering for project, and startup assistance.
1993	Indian Refining Company L.P. Lawrenceville Refin. Lawrenceville, IL	Ortloff Engineers, Ltd. The Pro-Quip Corporation	57 80	Skid-mounted Claus Sulfur Recovery System and SCOT tailgas system. Provided conceptual design package, process engineering for project, and startup assistance.
1994	Murphy Oil USA, Inc. Meraux Refinery Meraux, Louisiana	Ortloff Engineers, Ltd. The Pro-Quip Corporation	80	Skid-mounted Claus Sulfur Recovery System, SCOT tailgas cleanup system, and a tailgas incineration system. Provided conceptual design package, process engineering for project, and startup assistance.
1995	Goldston Oil Corporation Indian Rock Gilmer, Texas	Ortloff Engineers, Ltd. The Pro-Quip Corporation	8	Skid-mounted CBA Process Sulfur Recovery System with a waste heat recovered tailgas incineration system. Provided conceptual design package, process engineering for project, and startup assistance.
1995	Lion Oil Company El Dorado Refinery El Dorado, Arkansas	Ortloff Engineers, Ltd. The Pro-Quip Corporation	80	Skid-mounted Claus Sulfur Recovery System, SCOT tailgas cleanup system, and waste heat recovered tailgas incineration system. Provided conceptual design package, process engineering for project, and startup assistance.
1996	Atlas Processing Company Shreveport Refinery Shreveport, LA	Ortloff Engineers, Ltd. The Pro-Quip Corporation	20	Skid-mounted CBA Process Sulfur Recovery system. Provided conceptual design package, process engineering for project, and startup assistance.

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1997	Mead Containerboard, Inc. Stevenson, Alabama	Ortloff Engineers, Ltd. The Pro-Quip Corporation Ahlstrom Recovery Inc. Raytheon E&C BE&K	56	Skid-mounted Claus Process Sulfur Recovery system for paper mill effluent to reduce emissions by capturing sulfur for reuse in processing wood pulp. Provided conceptual design package, process engineering for project, and startup assistance.
1998	YPF S.A. La Plata Refinery La Plata, Argentina	Ortloff Engineers, Ltd. The Pro-Quip Corporation Astra-Evangelista S.A.	61	Skid-mounted Claus Sulfur Recovery System and waste heat recovered tailgas incineration system. Provided conceptual design package, process engineering for project, and startup assistance.
1998	YPF S.A. Lujan de Cuyo Refin. Mendoza, Argentina	Ortloff Engineers, Ltd. The Pro-Quip Corporation Astra-Evangelista S.A.	60	Skid-mounted Claus Sulfur Recovery System and waste heat recovered tailgas incineration system. Provided conceptual design package, process engineering for project, and startup assistance.
2000	Port Arthur Coker Company, L.P. Port Arthur Refinery	Ortloff Engineers, Ltd. The Pro-Quip Corporation Foster Wheeler Jacobs Engineering	417	Claus Sulfur Recovery System (2 trains), SCOT tailgas cleanup system, and waste heat recovered tailgas incineration system. Provided conceptual design package, process engineering for project, and startup assistance.
2002	PetroChina Southwest Oil and Gas Co., Ltd. Dianjiang Plant Dianjiang, China	Ortloff Engineers, Ltd. Linde AG	16	Clinsulf-SDP Sulfur Recovery System. Provided conceptual design package, process engineering, and startup assistance for the front-end section of the plant.
2003	Abu Dhabi Oil Refining Company Ruwais Refinery Ruwais, U.A.E.	Ortloff Engineers, Ltd. Larsen & Toubro Limited L&T - Chiyoda	51	CBA Sulfur Recovery System and waste heat recovered tailgas incineration system. Provided conceptual design package, process engineering for project, and startup assistance.
2004	Valero Port Arthur Refinery Port Arthur Refinery Port Arthur, TX	Ortloff Engineers, Ltd. Linde BOC Process Plants LLC Jacobs Engineering	208	Claus Sulfur Recovery System. Provided conceptual design package, process engineering for project, and startup assistance.
2004	Valero Port Arthur Refinery Port Arthur Refinery Port Arthur, TX	Ortloff Engineers, Ltd. Linde BOC Process Plants LLC Jacobs Engineering	417	Claus Sulfur Recovery System (2 trains), SCOT tailgas cleanup system, and waste heat recovered tailgas incineration system. Provided conceptual design package, process engineering for project, and startup assistance.
2005	Coffeyville Resources Refining & Marketing Coffeyville Refinery Coffeyville, KS	Ortloff Engineers, Ltd Linde BOC Process Plants LLC	100	Skid-mounted Claus Sulfur Recovery System, SCOT tailgas cleanup system, and waste heat recovered tailgas incineration system. Provided conceptual design package, process engineering for project, and startup assistance.
2006	Calumet Shreveport Lubricants Shreveport Refinery Shreveport, LA	Ortloff Engineers, Ltd. Linde BOC Process Plants LLC	25	Skid-mounted CBA Process Sulfur Recovery system. Provided conceptual design package, process engineering for project, and startup assistance.

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2006	Sinclair Wyoming Refining Company Sinclair Refinery Sinclair, WY	Ortloff Engineers, Ltd. Linde BOC Process Plants LLC	80	Skid-mounted Claus Sulfur Recovery System, SCOT tailgas cleanup system, and waste heat recovered tailgas incineration system. Provided conceptual design package, process engineering for project, and startup assistance.
2006	Sinclair Wyoming Refining Company Sinclair Refinery Sinclair, WY	Ortloff Engineers, Ltd. Linde BOC Process Plants LLC	80	Skid-mounted Claus Sulfur Recovery System, SCOT tailgas cleanup system, and waste heat recovered tailgas incineration system. Provided conceptual design package, process engineering for project, and startup assistance.
2007	Occidental Permian Denver City, TX	Ortloff Engineers, Ltd. HPF, Inc.	7.5	Converted Claus Sulfur Recovery Unit to the CBA Process to achieve % recovery performance. Provided conceptual design package and process engineering for project.
2007	Petrojam Limited Petrojam Refinery Kingston, Jamaica	Ortloff Engineers, Ltd. SNC - Lavalin	60	Amine regeneration, sour water stripping, Claus Sulfur Recovery System (2 trains), SCOT Tailgas Cleaning System, and waste heat recovered tailgas incineration system. Provided conceptual design package.
2008	Abu Dhabi Oil Refining Company Ruwais Refinery Ruwais, U.A.E.	Ortloff Engineers, Ltd. GS Engineering & Construction	100	Claus Sulfur Recovery System, SCOT Tailgas Cleanup System, and waste heat recovered tailgas incineration system. Provided conceptual design package, process engineering during project, and startup assistance.
2008	Oil & Gas Development Company Limited Dakhni Gas Plant Dakhni, Pakistan	Ortloff Engineers, Ltd. Presson Descon International Ltd.	90	Claus Sulfur Recovery System and tailgas incineration system. Provided conceptual design package and process engineering during project.
2008	Sinclair Tulsa Refining Company Sinclair Refinery Tulsa, OK	Ortloff Engineers, Ltd. Linde Process Plants	150	Amine regeneration, sour water stripping, SUPERCLAUS Sulfur Recovery System, waste heat recovered tailgas incineration system, and DynaWave tailgas scrubbing system. Provided conceptual design package.
2008	Sinclair Tulsa Refining Company Sinclair Refinery Tulsa, OK	Ortloff Engineers, Ltd. Linde Process Plants	150	Amine regeneration, sour water stripping, SUPERCLAUS Sulfur Recovery System, waste heat recovered tailgas incineration system, and DynaWave tailgas scrubbing system. Provided conceptual design package.
2008	Sinclair Tulsa Refining Company Sinclair Refinery Tulsa, OK	Ortloff Engineers, Ltd. Linde Process Plants	150	Amine regeneration, sour water stripping, SUPERCLAUS Sulfur Recovery System, waste heat recovered tailgas incineration system, and DynaWave tailgas scrubbing system. Provided conceptual design package.
2008	Total Petrochemicals USA, Inc. Port Arthur Refinery Port Arthur, TX	Ortloff Engineers, Ltd. Fluor Corporation	225	Claus Sulfur Recovery System, SCOT Tailgas Cleanup System, and waste heat recovered tailgas incineration system. Provided conceptual design package, process engineering during project, and startup assistance.

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2008	Total Petrochemicals USA, Inc. Port Arthur Refinery Port Arthur, TX	Ortloff Engineers, Ltd. Fluor Corporation	225	Claus Sulfur Recovery System, SCOT Tailgas Cleanup System, and waste heat recovered tailgas incineration system. Provided conceptual design package, process engineering during project, and startup assistance.
2009	Cash Creek Generation LLC Henderson Co, KY	Ortloff Engineers, Ltd. UOP LLC Burns & McDonnell	293	Claus Sulfur Recovery System (2 trains) SCOT Tailgas Conversion System, waste heat recovered tailgas incineration system, and DynaWave Tailgas scrubbing system. Provided conceptual design package.
2010	Hindustan Petroleum Corporation Ltd. Mumbai Refinery Mumbai, India	Ortloff Engineers, Ltd. Linde Process Plants Linde Engineering India	130	Claus Sulfur Recovery System (2 trains), SCOT Tailgas Cleanup System, and waste heat recovered tailgas incineration system. Provided conceptual design package, process engineering for project, and startup assistance.
2011	Pohang Iron and Steel Company (POSCO) POSCO SNG Project Gwangyang, Korea	Ortloff Engineers, Ltd. Linde Process Plants Linde Engineering	68	Claus Sulfur Recovery System, SCOT Tailgas Conversion System, and waste heat recovered tailgas incineration system. Provided conceptual design package, project engineering for project, and startup assistance.
2011	Samsung Total Petrochemicals No. 2 Aromatics Complex Daesan, Korea	Ortloff Engineers, Ltd. UOP LLC Samsung Engineering	68	Claus Sulfur Recovery System (2 trains), SCOT Tailgas Cleanup System, and waste heat recovered tailgas incineration system. Provided conceptual design package.
2012	PEMEX Refinacion Madero Refinery Tamaulipas, Mexico	Ortloff Engineers, Ltd. CB&I, Inc. ICA Fluor	148	CBA Sulfur Recovery System. Provided conceptual design package.
2012	PEMEX Refinacion Minatitlan Refinery Veracruz, Mexico	Ortloff Engineers, Ltd. CB&I, Inc. Tecnicas Reunidas	148	CBA Sulfur Recovery System. Provided conceptual design package.
2012	PEMEX Refinacion Salamanca Refinery Guanajuato, Mexico	Ortloff Engineers, Ltd. CB&I, Inc.	295	CBA Sulfur Recovery System (3 trains). Provided conceptual design package.
2012	PEMEX Refinacion Salina Cruz Refinery Oaxaca, Mexico	Ortloff Engineers, Ltd. CB&I, Inc. FW Iberia	79	CBA Sulfur Recovery System. Provided conceptual design package.
2012	Shell Chemical Company Mobile Refinery Sinclair Refinery Saraland, AL	Ortloff Engineers, Ltd.	Expand to 35 LT/D	Prepare a report recommending what modifications should be made to debottleneck the existing Sulfur Recovery Unit #1, existing SCOT Tailgas Cleanup Unit, and existing Tailgas Incinerator (SRU#1/SCOT/Incin) for processing a nominal 35 LT/D sulfur feed rate.
2014	Husky -CNOOC Madura Limited Madura BD Field Offshore Indonesia	Ortloff Engineers, Ltd Bumi Armada Berhad	25	Selectox/CBA Sulfur Recovery System and waste heat recovered tailgas incineration system. Provided conceptual design package, process engineering during project, and startup assistance.

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2016	ADNOC Refining Ruwais, U.A.E.	Ortloff Engineers, Ltd Wison Engineering, Ltd.	100	Claus Sulfur Recovery System, SCOT Tailgas Cleanup System, and waste heat recovered tailgas incineration system. Will provide conceptual design package, process engineering during project, and startup assistance.
2017	Valero Energy Corporation Port Arthur, TX	Ortloff Engineers, Ltd Richard Design Services	417	Claus Sulfur Recovery System (2 trains), SCOT tailgas cleanup system, and waste heat recovered tailgas incineration system. Provided conceptual design package.