PERMIT TO OPERATE

COMPANY NAME: BP West Coast Products LLC
Facility ID: 131003

MAILING ADDRESS: P.O. Box 6210
Carson, CA 90749

EQUIPMENT ADDRESS: 2350 East 223rd Street
Carson, CA 90810

Equipment	ID No.	Connected To	RECLAIM Source Type/Monitoring Unit	Emissions and Requirements	Conditions
Process 19: PETROLEUM MISCELLANEOUS					
System 5: ABRASIVE BLASTING EQUIPMENT					
ABRASIVE BLASTING, CABINET, CLEMCO INDUSTRIES CORP., MODEL BNP-600-900 RPC, ALUMINUM OXIDE, LOCATED IN THE COGEN AREA, WITH MEDIA RECLAIMER, WIDTH: 4 FT 8 IN; HEIGHT: 4 FT 5 IN; LENGTH: 4 FT 10.5 IN A/N 476190 ABRASIVE BLASTING NOZZLE, DIAMETER: 0.5 INCH, 80 PSI	DX1	CX2		PM: (9)[**RULE 1140, 2-1-1980**; RULE 1140, 8-2-1985; **RULE 404, 2-7-1986; RULE 405, 2-7-1986**]	C1.X, D323.2, H23.16
BAGHOUSE, WITH REVERSE PULSE CLEANING, CARTRIDGE FILTER, CLEMCO INDUSTRIES CORP., MODEL RPC-2-900, LOCATED IN COGEN AREA, 470 SQUARE FEET, 2 CARTRIDGES, POLYESTER/CELLULOSE, WITH A/N 476188 BLOWER, EXHAUST, 2 HP	CX2	DX1			D12.X, D322.1, D381.1, E102.1, K67.8
ABRASIVE BLASTING, MACHINE, STEEL SHOT, LOCATED AT THE MACHINE SHOP, GOFF CORP., MODEL NO. 48TB, WITH 15 HP BLAST WHEEL REVOLVING AT 3600 RPM, WIDTH: 7 FT 3 IN; HEIGHT: 10 FT 2 IN; LENGTH: 7 FT 4 IN A/N 476198	DX3	CX4		PM: (9)[**RULE 1140, 2-1-1980**; RULE 1140, 8-2-1985; **RULE 404, 2-7-1986; RULE 405, 2-7-1986**]	D323.2, H23.16,

BAGHOUSE, WITH PULSE JET CLEANING, FABRIC FILTER, GOFF INC., MODEL 1850, LOCATED AT MACHINE SHOP, 88 SQUARE FEET, 18 BAGS, POLYESTER FELT, WITH A/N 476192 BLOWER, EXHAUST, 2 HP	CX4				D12.X, D322.1, D381.1, E102.1, K67.8

BACKGROUND

BP West Coast Products LLC (Facility ID: 131003) submitted A/Ns 476188, 476190, 476192 and 476198 to the District, seeking Permits to Operate (PO)s for existing abrasive blasting systems operated at the BP Carson Refinery. The subject equipment includes an abrasive blasting cabinet/with baghouse located in the cogeneration area and an abrasive blasting machine/with baghouse located in the machine shop. This equipment is currently operated at the BP Carson Refinery, but has not been issued District permits. Thus, permitting of the equipment requires a 50% fee penalty. The District issued an initial Title V permit to the BP Carson Refinery on September 1, 2009.

A search of District records indicates that there have been no Notices of Violation (NOV) or Notices to Comply (NTC)s issued for the subject equipment over the past three years.

PROCESS DESCRIPTION

The abrasive blasting cabinet located in the cogen area is used for blasting (cleaning) miscellaneous metal parts. It is supplied by Zero (Clemco Industries) and has Model No. BNP 600-900 RPC. Operation of the equipment involves dry blasting with aluminum oxide abrasive material, which has a density of 160 lbs/cubic foot, at a material flow rate of 1,697 lbs/hr. The cabinet has the following dimensions: width of 4 feet 8 inches, height of 4 feet 5 inches height, and length of 4 feet 10.5 inches. It is equipped with a single ½ inch diameter nozzle, making use of plant compressed air at a flow rate of 86 cfm @ 80 psi to convey the abrasive material. Vent from the cabinet is directed to a baghouse for control of particulate matter. There are two baffled air ports, with an exhaust blower flow rate of 900 cfm. The schedule of operation for this equipment is 2 hours per day – average expected operation (19 hours per day – maximum operation), 7 days per week, for 52 weeks per year.

The baghouse serving the abrasive blasting cabinet in the cogen area is also supplied by Zero (Clemco Industies - Model No. RPC-2-900). It is equipped with two cartridge filters, each with a diameter of 3 feet and length of 5 feet 4 inches, for a total filter area of 470 square feet. It has a design air to filter ratio of 2:1. It uses pulse jet for cartridge cleaning.

It operates under negative pressure; induced draft is formed with a 2 HP blower which has a design flow rate of 900 scfm. The expected pressure drop through the baghouse ranges from a low of 2 inches Water Column (W.C.) up to 4 inches W.C. It is equipped with a dust collection device, which is a manual discharge device incorporating hinged doors or drawers. It has a manufacturer's guarantee control efficiency of 99.85%, over a wide range of particle sizes.

The abrasive blasting machine located in the machine shop uses steel shot as the abrasive material. It is used to dry blast various metal parts. The materials to be cleaned are rotated slowly (7 RPM) on a 48 inch diameter work table. A direct drive blast wheel with curved blades, revolving at 3600 RPM, is used to impart the necessary force to the abrasive material. After use, spent abrasive passes through screening in the floor of the cabinet and is transported to a Separator, which separates contaminant from the reusable abrasive. Usable abrasive is deposited into an Abrasive Storage Hopper for delivery to the blast wheel. Dust and contaminant are drawn out of the Separator and into the Dust Collection System for disposal. The system is supplied by Goff Corporation (Model No. 48TB) and has the following dimensions: width of 7 feet 3 inches, height of 10 feet 2 inches, and length of 7 feet 4 inches. It uses steel shot, which has a density of 487 lbs/cubic foot. Other specifications include wheel impeller horsepower of 15 HP, pot capacity of 400 lbs and exhaust blower flow rate of 780 cfm. This equipment operates 7 days per week, 52 weeks per year, for an average of 1 hour per day and maximum of 24 hours per day.

The baghouse serving the abrasive blasting machine located in the machine shop was supplied by Goff Inc. (Model No. 1850). It has 18 bags (each bag has a diameter of 4 ½ inch and length of 50 inch) made of polyester felt, with a total cloth area of 88 square feet. It uses pulse jet for bag cleaning, requiring 80 to 110 psi compressed air. The dust collection system consists of a manual discharge device with a slide gate. It operates under negative pressure and is equipped with a 2 HP blower, with a design air flow of 780 cfm, providing induced draft. The design air to filter ratio is 8.86:1. The static pressure drop under clean bag conditions is 0.25 inch W.C. The equipment supplier indicates that the particulate matter control efficiency is 99.9%, down to 1 micron particles.

EMISSIONS

Emissions from the abrasive blasting cabinet in the cogen area are calculated below. Attachment #2 in A/Ns 476188/476190 contains data used in the emissions calculation.

Maximum Operation:	19 hrs/day, 7 days/wk, 52 wks/yr
Monthly Operating Limit Accepted by BP:	550 hrs/month
Number of Nozzles:	One (1/2 inch)
Abrasive Type and Density:	aluminum oxide @ 160 lbs/ft^3

Abrasive (sand) rate for ½ inch nozzle @ 80 psi: 1,050 lbs/hr

Abrasive Rate corrected to density of aluminum oxide: 1,050 lbs/hr x (160 lbs/ft^3/99 lbs/ft^3) = 1,697 lbs/hr

(sand density = 99 lbs/ft^3)

(aluminum oxide density = 160 lbs/ft^3)

Time Wet or Hydro-blasting: 0%

Uncontrolled emission factor: 0.01 lb PM/ lb abrasive (from Test Data for Abrasive Blasting Operations, Attachment #2 in A/Ns 476188/476190)

PM10 86% of PM is PM_{10} (from CEIDARS data, Attachment #2 in A/Ns 476188/476190)

Baghouse control efficiency: 99.85% (information from baghouse filter cartridge supplier, Attachment #1 in A/Ns 476188/476190)

Uncontrolled PM (PM_{10}) emissions

Hourly = 1,697 lbs/hr x 0.01 lb PM/lb abrasive
= 17.0 lbs PM/hr (14.6 lbs PM_{10}/hr)

Daily (30 day average) = 17.0 lbs/hr x 550 hrs/month / 30 day/month
= 311.1 lbs PM/day (267.6 lbs PM_{10}/day)

Controlled PM (PM_{10}) emissions

Hourly = 17.0 lbs/hr x (1 – 0.9985)
= 0.025 lbs PM/hr (0.022 lbs PM_{10}/hr)

Daily (30 day average) = 0.025 lbs/hr x 550 hrs/month / 30 day/month
= 0.47 lbs PM/day (0.40 lbs PM_{10}/day)

Baghouse Exhaust PM concentration

Concentration = 0.025 lbs/hr x 7000 grains/lb / 900 cu ft/min x 60 min/hr
= 0.0033 grains/cu ft

Rule 404 Concentration Limit = 0.195 grains/cu ft

Rule 405 Maximum PM Rate = 3.39 lbs/hr

Toxic Air Contaminants

The abrasive blasting cabinet, equipped with PM control, located in the cogen unit area uses aluminum oxide as the abrasive material. The MSDS for this material indicates that it

is 94+ % aluminum oxide, 2.5 – 4% titanium oxide, <1.5% iron oxide, and < 1.0% silicon dioxide (note crystalline silica does not have approved risk values). None of these constituents are Toxic Air Contaminants (TAC)s under District Rule 1401.

Emissions from the abrasive blasting machine in the machine shop are calculated below. Attachment #1 in A/Ns 476192/476198 lists specifications for the baghouse, including particulate matter control efficiency. Attachment #2 is an MSDS for the Cast Steel Shot. Attachment #3 has data used in calculating the emissions rate.

Operating Schedule:	24 hrs/day, 7 days/wk, 52 wks/yr (744 hrs/month – 31 days)
Wheel Impeller Horsepower:	15 HP
Time Wet or Hydro-blasting:	0%
Uncontrolled emission factor:	0.3 lb PM/ BHP-hr (from District Memorandum regarding emissions factor, Attachment #3 in A/Ns 476192/476198)
PM10	86% of PM is PM_{10} (from CEIDARS data, Attachment #3 in A/Ns 476192/476198)
Baghouse control efficiency:	99.9% (Dust Collector specifications, Attachment #1 in A/Ns 476192/476198)

<u>Uncontrolled PM (PM_{10}) emissions</u>

Hourly	= 15 HP x 0.3 lb PM/ BHP-hr
	= 4.5 lbs PM/hr (3.9 lbs PM_{10}/hr)
Daily (30 day average)	= 4.5 lbs/hr x 744 hrs/month / 30 day/month
	= 111.6 lbs PM/day (96.0 lbs PM_{10}/day)

<u>Controlled PM (PM_{10}) emissions</u>

Hourly	= 4.5 lbs/hr x (1 – 0.999)
	= 0.0045 lbs PM/hr (0.0039 lbs PM_{10}/hr)
Daily (30 day average)	= 0.0045 lbs/hr x 744 hrs/month / 30 day/month
	= 0.11 lbs PM/day (0.096 lbs PM_{10}/day)

<u>Baghouse Exhaust PM concentration</u>

Concentration	= 0.0045 lbs/hr x 7000 grains/lb / 780 cu ft/min x 60 min/hr
	= 0.00067 grains/cu ft

Rule 404 Concentration Limit	= 0.196 grains/cu ft
Rule 405 Maximum PM Rate	= 12.4 lbs/hr (based on Rule 405,

Table 405(a) process weight of 25,800 lbs/hr)

Toxic Air Contaminants

The abrasive blasting machine, equipped PM control, located in the machine shop uses steel shot as the abrasive material. The MSDS for this material indicates that it is > 96% iron, 0.8 - 1.3% carbon, 0.5 - 1.3% manganese, 0.3 – 1.2% silicon, < 0.25% chromium, and < 0.2% nickel. Using the annual PM emissions rate of 39.42 lbs/year (0.0045 lbs/hr x 24 hrs/day x 365 days/year), emissions of constituents (including TACs) may be calculated, as shown below.

Iron	37.84 lbs/year
Carbon	0.51 lbs/yr
Manganese	0.51 lbs/yr
Silicon	0.47 lbs/yr
Chromium	0.099 lbs/yr
Nickel	0.079 lbs/yr

Notes: Iron, Carbon, and Silicon are not considered TACs under District Rule 1401.

RULE EVALUATION

California Environmental Quality Act

The applicant has submitted Form 400-CEQA, addressing CEQA applicability to this project. The information in this form indicates that the project does not have the potential for a significant impact on the environment. Therefore, an Enviromental Impact Report (EIR) is not required for this project.

Rule 212 – Standards for Approving Permits

This rule requires public noticing for a modification or a new source located within 1000 feet of a school, if the project results in an increase in toxic air contaminant emissions resulting in exposure to a Maximum Individual Cancer Risk (MICR) of one in a million ($1x10^{-6}$) or greater during a lifetime (70 years), or if the project results in an emissions increase exceeding the limits stated in §212(g). The equipment is not within 1000 feet of a school. The abrasive blasting systems are not expected to emit criteria air contaminants in excess of limits stated under §212(g). The increase in MICR associated with the project is expected to be under $1x10^{-6}$. The abrasive blasting system in the cogen area does not emit TACs and the TACs emitted from the abrasive blasting system in the machine shop meet Tier I Screening Health Risk Assessment (HRA) limits (See Attachment #4 in A/N 476192/476198). Therefore, a public notice under Rule 212 is not required.

Rule 401 & 402 - Visible Emissions and Nuisance

The abrasive blasting systems are equipped with baghouses for control of particulate matter. They are not expected to be a source of nuisance odors or visible emissions exceeding a shade as dark as or darker than that designated No. 1 on the Ringelmann Chart, by the US Bureau of Mines, for a period exceeding 3 minutes in any hour. Compliance with the these rules is expected.

Rule 404 – Particulate Matter – Concentration

This rule limits the particulate matter concentration in vent gas from a source. The particulate matter concentration limit is dependent on the volumic flow rate of gases discharged, with a maximum of 0.196 grains/cubic foot stated. The abrasive blasting systems are equipped with baghouses and are not expected to emit particulate matter in excess of Rule 404 limits. The expected particulate matter concentrations are compared to Rule 404 concentration limits in the Emissions section of this evaluation. Continued compliance with this rule is expected.

Rule 405 – Solid Particulate Matter – Weight

This rule specifies a particulate matter mass emissions limit for a source, as a function of process weight. The abrasive blasting systems are equipped with baghouses and are not expected to emit particulate matter in excess of Rule 405 limits. The expected particulate matter mass emissions are compared with Rule 405 limits in the Emissions section of this evaluation. Compliance with the requirements of this rule is expected.

Reg. IX - New Source Performance Standards

There are no applicable New Source Performance Standards (NSPS), promulgated under 40 CFR 60, for this equipment.

Rule 1140 – Abrasive Blasting

This rule states standards for abrasive blasting operations. It requires that abrasive blasting operations be one of the following: confined blasting, wet abrasive blasting, hydroblasting, or dry unconfined using abrasives meeting the standards stated in §1140(c). It requires that discharge from abrasive blasting systems not exceed a shade as dark as or darker than that designated as No. 2 on the Ringelmann Chart, as published by the US Bureau of Mines, for a period of more than three minues in any hour. Section 1140(e) describes how visible emissions should be evaluated. The requirements include that emissions shall be read in opacities and recorded in percentages, the light source should be behind the observer during daylight hours, the light source should be behind the

emissions during hours of darkness, the observer position should be at right angles to wind direction and at a distance no less than twice the height of the source but no more than a quarter mile from the base of the source, and that emissions from confined abrasive blasting should be read at the densest point after air contaminant leaves the enclosure. The abrasive blasting systems in the cogen area and in the machine shop are enclosed operations and are equipped with baghouses with expected efficiencies exceeding 99%. Permit conditions require periodic opacity measurements. Opacities from the subject equipment are not expected to exceed a shade corresponding to No. 2 on the Ringelmann Chart for a period exceeding three minutes in any hour. Compliance with the requirements of rule is expected.

Reg. XIII - New Source Review:

This rule states requirements including the use of Best Available Control Technology (BACT), providing emissions offsets for increases in non-attainment air contaminant emissions, and performing air quality modeling to assess the impact on the project on ambient pollutant concentrations. Each abrasive blasting system (abrasive basting cabinet in the cogen area and abrasive blasting machine in the machine shop) is equipped with a baghouse for control of particulate matter emissions. Per manufacturer data, the particulate matter control efficiencies by these baghouses are expected to exceed 99%. Thus, this control equipment is considered BACT for this application. For each of these systems, daily PM_{10} emissions (lbs/day – 30 day average) are less than 0.5 lbs/day. Therefore, emissions offsets, in the form of Emissions Reduction Credits (ERC)s will not be required. The hourly PM emissions from these sources are less than the threshold stated in Rule 1303, Appendix A, Table A-1 for noncombustion sources of 0.41 lbs PM_{10}/hour. Therefore, air quality modeling will not be required for this project.

Rule 1401 – New Source Review of Carcinogenic Air Contaminants

This rule has requirements that any new construction or modification not result in an increase in TACs, such that the Maximum Individual Cancer Risk (MICR) exceeds one in a million ($1x10^{-6}$) if T-BACT is not used, or ten in a million ($10x10^{-6}$) if T-BACT is applied, that chronic and acute hazard indices not exceed 1.0, and that the cancer burden not exceed 0.5. The abrasive blasting system in the cogen area is not expect to emit any TACs listed under this rule. The TAC emissions from the abrasive blasting system in the machine shop meets the Tier I Health Risk Assessment (HRA) limits (see Attachment #4 in A/N 476192/476198). These systems are expected to operate in compliance with this rule.

Reg XVII – Prevention of Signigicant Deterioration

This rule applies to emissions of pollutants from the facility for which attainment with ambient air quality standards has been achieved in the South Coast Air Basin (NO_2, SO_2, and CO). The subject equipment (abrasive blasting systems with PM control) does not emit these pollutants. Therefore, Reg XVII requirements do not apply to this permitting action.

Reg. XXX - TV Operating Permits

The BP Carson Refinery is subject to Reg. XXX and the initial Title V permit was issued on September 1, 2009. As defined in Rule 3000, the subject permitting action involves a De Minimis Significant Revision of the BP Carson Refinery Title V permit. The sum of emissions of PM_{10} from this project and from other De Minimis Significant Revision projects permitted since the issuance of the initial Title V permit are below the limit of 30 lbs per day, stated in §3000(b)(7). As a De Minimis Significant Revision, the project is subject to the 45 day EPA review and comment period, but is not subject to public noticing requirements under Rule 3006.

40 CFR 63, Subpart CC

This regulation does not state requirements which are applicable to abrasive blasting systems equipped with PM control. Therefore, it does not apply to the subject equipment.

RECOMMENDATION

Issue the Permit to Operate with the following conditions:

C1.X The operator shall limit the operating time to no more than 550 hour(s) in any one calendar month.

The operator shall maintain records in a manner approved by the District, to demonstrate compliance with this condition.

[**RULE 1303(b)(2)-Offset, 5-10-1996**; RULE 1303(b)(2)-Offset, 12-6-2002]

[Devices subject to this condition: DX1]

D12.X The operator shall install and maintain a(n) differential gauge to accurately indicate the differential pressure across the filter cartridges.

The operator shall determine and record the parameter being monitored once every day, unless the equipment being controlled by this device is not in service. The daily log shall list either the parameter being monitored or that the equipment being controlled is not in service on that day.

[**RULE 1303(a)(1)-BACT, 5-10-1996**; RULE 1303(a)(1)-BACT, 12-6-2002]

[Devices subject to this condition: CX2, CX4]

D322.1 The operator shall perform annual inspection of the equipment and filter media for leaks, broken or torn filter media, and improperly installed filter media.

[**RULE 1140, 2-1-1980**; RULE 1140, 8-2-1985; **RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997**; **RULE 401, 3-2-1984**; RULE 401, 11-9-2001, **RULE 404, 2-7-1986**, **RULE 405, 2-7-1986**]

[Devices subject to this condition: CX2, CX4]

D323.2 The operator shall conduct an inspection for visible emissions from all stacks and other emission points of this equipment whenever there is a public complaint of visible emissions, whenever visible emissions are observed, and on an annual basis, at least, unless the equipment did not operate during the entire annual period. The routine annual inspection shall be conducted while the equipment is in operation and during daylight hours.

If any visible emissions (not including condensed water vapor) are detected that last more than three minutes in any one hour, the operator shall verify and certify within 24 hours that the equipment causing the emission and any associated air pollution control equipment are operating normally according to their design and standard procedures and under the same conditions under which compliance was achieved in the past, and either:

1). Take corrective action(s) that eliminates the visible emissions within 24 hours and report the visible emissions as a potential deviation in accordance with the reporting requirements in Section K of this permit; or

2). Have a CARB-certified smoke reader determine compliance with the opacity standard, using EPA Method 9 or the procedures in the CARB manual "Visible Emission Evaluation", within three business days and report any deviations to AQMD.

The operator shall keep the records in accordance with the recordkeeping requirements in Section K of this permit and the following records:

1). Stack or emission point identification;

2). Description of any corrective actions taken to abate visible emissions;

3). Date and time visible emission was abated; and

4). All visible emission observation records by operator or a certified smoke reader.

[**RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997**; **RULE 401, 3-2-1984**; RULE 401, 11-9-2001]

[Devices subject to this condition: DX1, DX3]

D381.1 The operator shall conduct an inspection for visible emissions from all stacks and other emission points of this equipment whenever there is a public complaint of visible emissions, whenever visible emissions are observed, and on a quarterly basis, at least, unless the equipment did not operate during the entire quarterly period. The routine quarterly inspection shall be conducted while the equipment is in operation and during daylight hours. If any visible emissions (not including condensed water vapor) are detected, the operator shall take corrective action(s) that eliminates the visible emissions within 24 hours and report the visible emissions as a potential deviation in accordance with the reporting requirements in Section K of this permit.

The operator shall keep the records in accordance with the recordkeeping requirements in Section K of this permit and the following records:

1). Stack or emission point identification;

2). Description of any corrective actions taken to abate visible emissions; and

3). Date and time visible emission was abated.

[**RULE 1140, 2-1-1980**; RULE 1140, 8-2-1985; **RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997**; **RULE 401, 3-2-1984**; RULE 401, 11-9-2001]

[Devices subject to this condition: CX2, CX4]

E102.1 The operator shall discharge dust collected in this equipment only into closed containers.

[**RULE 1303(a)(1)-BACT, 5-10-1996**; **RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997; RULE 401, 3-2-1984**; RULE 401, 11-9-2001; **RULE 404, 2-7-1986**]

[Devices subject to this condition: CX2, CX4]

H23.16 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
PM	District Rule	1140

[**RULE 1140, 2-1-1980**; RULE 1140, 8-2-1985]

[Devices subject to this condition: DX1, DX3]

K67.8 The operator shall keep records, in a manner approved by the District, for the following parameter(s) or item(s):

The name of the person performing the inspection and/or maintenance of the filter media.

The date, time and results of the inspection.

The date, time and description of any maintenance or repairs resulting from the inspection.

[**RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997; RULE 401, 3-2-1984**; RULE 401, 11-9-2001; **RULE 404, 2-7-1986**]

[Devices subject to this condition: CX2, CX4]