CONSTRUCTION PERMIT
OFFICE OF AIR MANAGEMENT

ConAgra Soybean Processing Company
West Franklin Road
Marrs Township, Indiana 47620

is hereby authorized to construct

a grain merchandising, and a soybean oil extraction and refining plant, having a grain receiving capacity of a maximum of 3,000 tons per hour, and 4,052,912 tons per year; and having a soybean crush plant capacity of 6,819 tons/day; a planned loadout of grains of 1,500,000 tons per year without processing, and a planned soybean oil manufacturing capacity of 497,818 tons per year at the above location consisting of the equipment and operations listed in pages 2 through 16 of this permit.

This permit is issued to the above mentioned company (herein known as the Permittee) under the provisions of 326 IAC 2-2 and 40 CFR 52.21 (Regulations for preventing significant deterioration of air quality); and 40 CFR 124 (Procedures for decision making), with conditions listed on the attached pages.

Construction Permit No.: CP-129-8541-00039	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date:

(1) one (1) truck/rail grain receiving pit, maximum capacity of 40,000 bushels per hour, controlled by a receiving area baghouse (DF-1), and exhausting at stack Pt # DF1;

(2) one (1) truck grain receiving pit no. 1, maximum capacity of 40,000 bushels per hour, controlled by a receiving area baghouse (DF-2), and exhausting at stack Pt # DF2;

(3) one (1) truck grain receiving pit no. 2, maximum capacity of 40,000 bushels per hour, controlled by a receiving area baghouse (DF-3), and exhausting at stack Pt # DF3;

(4) one (1) barge grain unloading facility, maximum capacity of 20,000 bushels per hour, controlled by a barge receiving area baghouse (DF-6), and exhausting at stack Pt # DF6;

(5) one (1) totally enclosed rail/truck grain receiving pit drag conveyor (DC-1), maximum capacity of 40,000 bushels per hour;

(6) two (2) totally enclosed truck grain receiving pit #1 drag conveyors (DC-2), maximum capacity of 20,000 bushels per hour each;

(7) two (2) totally enclosed truck grain receiving pit #2 drag conveyors (DC-3), maximum capacity of 20,000 bushels per hour each;

(8) one (1) totally enclosed truck/rail grain receiving belt conveyor (BC-20), maximum capacity of 40,000 bushels per hour aspirated to a receiving area baghouse (DF-1), and exhausting at stack Pt # DF1;

(9) two (2) soybean rail receiving bucket elevators (RJL-1(to Garner scale) & RRL-1), maximum capacity of 40,000 bushels per hour each, controlled by a receiving area baghouse (DF-1), and exhausting at stack Pt # DF1;

(10) one (1) grain garner scale, maximum capacity of 40,000 bushels per hour, controlled by a receiving area baghouse (DF-1), and exhausting at stack Pt # DF1;

(11) two (2) soybean truck/barge receiving #1 bucket elevators (TRL-1 & BRL-1), maximum capacities of 40,000, and 20,000 bushels per hour respectively, maximum system capacity of 40,000 bushels per hour total, controlled by a receiving area baghouse (DF-2), and exhausting at stack Pt # DF2;

(12) two (2) soybean truck receiving #2 bucket elevator (TRL-1 and BSL-1), maximum capacity of 20,000 bushels per hour each, controlled by a receiving area baghouse (DF-3), and exhausting at stack Pt # DF3;

(13) two (2) covered barge grain receiving conveyors and one (1) covered barge grain receiving, and grain and soybean meal loadout belt conveyor (BC-2), maximum system receiving capacity of 20,000 bushels per hour, aspirated to a barge receiving area baghouse (DF-6), and exhausting at stack Pt # DF6;

(14) one (1) soybean receiving bucket elevator, maximum capacity of 20,000 bushels per hour, controlled by a barge receiving area baghouse (DF-6), and exhausting at stack Pt # DF6;

(15) one (1) covered barge grain receiving belt conveyor (BC-2), and a bucket elevator (BRL-1), maximum receiving capacity of 20,000 bushels per hour, aspirated to a barge receiving system baghouse (DF-4), and exhausting at stack Pt # DF4;

(16) one (1) grain barge garner scale, maximum capacity of 20,000 bushels per hour, controlled by a barge receiving system baghouse (DF-4), and exhausting at stack Pt # DF4;

(17) two (2) covered barge soybean meal, and grains loadout belt conveyors (BC-2, and BC-26), maximum capacity of 40,000 bushels per hour aspirated to a barge loading baghouse (DF-5), and exhausting at stack Pt # DF5;

(18) one (1) barge soybean meal, and grains loadout system, maximum capacity of 40,000 bushels per hour, controlled by a barge loading baghouse (DF-5), and exhausting at stack Pt # DF5;

(19) four (4) totally enclosed drag conveyors, maximum capacity of 40,000 bushels per hour each, controlled by a elevator screening baghouse (DF-7A), and exhausting at stack Pt # DF7A;

(20) eight (8) grain screeners, maximum total capacity of 9,600 tons per hour, controlled by a elevator screening baghouse (DF-7A), and exhausting at stack Pt # DF7A;

(21) three (3) totally enclosed belt conveyors, transferring grains from elevators to the storage, maximum capacity of 40,000 bushels per hour each, controlled by a transfer #1 baghouse (DF-7B), and exhausting at stack Pt # DF7B;

(22) three (3) totally enclosed belt conveyors, transferring grains from elevators to the storage, maximum capacity of 40,000 bushels per hour each, controlled by a transfer #2 baghouse (DF-7C), and exhausting at stack Pt # DF7C;

(23) three (3) totally enclosed belt conveyors, transferring grains from elevators to the storage, maximum capacity of 40,000 bushels per hour each, controlled by a transfer #3 baghouse (DF-7D), and exhausting at stack Pt # DF7D;

(24) four (4) steel grain storage tanks, total capacity of 6,000,000 bushels, controlled by steel tanks storage baghouses (DF-8, 9, 10, and 11), and exhausting at stack Pt # DF 8, 9, 10, and 11;

(25) concrete grain storage silos, total capacity of 2,067,700 bushels;

(26) four (4) grain reclaim system belt conveyors (includes covered conveyor BC-2, and totally enclosed conveyors BC-14, BC-17, and BC-50), maximum system capacity of 1,200 tons per hour, controlled by a grain reclaim system #1 baghouse (DF-12), and exhausting at stack Pt # DF12 ;

(27) two (2) grain reclaim system #1 bucket elevators (TRL-1 & BSL-1), maximum capacity of 1,200 tons per hour each, controlled by a grain reclaim system #1 baghouse (DF-12), and exhausting at stack Pt # DF12 ;

(28) three (3) totally enclosed grain reclaim system #2 belt conveyors (includes BC-16, BC-17, and BC-50), maximum system capacity of 360 tons per hour each, controlled by a grain reclaim system #2 baghouse (DF-13), and exhausting at stack Pt # DF13 ;

(29) one (1) grain reclaim system #2 bucket elevator (PL-1), maximum capacity of 360 tons per hour, controlled by a grain reclaim system #2 baghouse (DF-13), and exhausting at stack Pt # DF13 ;

(30) one (1) 45 million Btu/hour natural gas fired grain dryer (DF-15), maximum capacity of 126 tons per hour at 5% moisture removal;

(31) one (1) dryer wet leg bucket elevator (WL-1), maximum capacity of 360 tons per hour;

(32) one (1) dryer dry leg bucket elevator (DL-1), maximum capacity of 360 tons per hour;

(33) two (2) totally enclosed dryer drag conveyors (DC-7 & DC-8), maximum capacity of 360 tons per hour each;

(34) one (1) soybean meal garner scale, maximum capacity of 1,200 tons per hour, controlled by a rail and barge meal/grain/hull loadout baghouse (DF-18A), and exhausting at stack Pt # DF18A;

(35) one (1) covered meal/hulls/grain belt conveyor (BC-2), maximum capacity of 1,200 tons per hour, controlled by a rail and barge meal/grain/hull loadout baghouse (DF-18A), and exhausting at stack Pt # DF18A;

(36) one (1) totally enclosed soybean meal belt conveyor (BC-13), maximum capacity of 1,200 tons per hour, controlled by a rail and barge meal/grain/hull loadout baghouse (DF-18A), and exhausting at stack Pt # DF18A;

(37) one (1) rail load out system with loading spout, maximum capacity of 1,200 tons per hour, controlled by a rail and barge meal/grain/hull loadout (DF-18A), and exhausting at stack Pt # DF18A;

(38) one (1) totally enclosed soybean meal storage unloading drag conveyor (feeding the surge bins), maximum capacity of 400 tons per hour, controlled by a truck meal/grain/hull loadout baghouse (DF-18B), and exhausting at stack Pt # DF18B;

(39) one (1) totally enclosed soybean meal storage unloading drag conveyor (feeding the truck load out system), maximum capacity of 400 tons per hour, controlled by a truck meal/grain/hull loadout baghouse (DF-18B), and exhausting at stack Pt # DF18B;

(40) one (1) truck load out system with telescopic loading spout, maximum capacity of 400 tons per hour, controlled by a truck meal/grain/hull loadout baghouse (DF-18B), and exhausting at stack Pt # DF18B;

(41) one (1) meal car pneumatic vacuum system equipped with a meal car vacuum baghouse (FL-20603), and exhausting at stack Pt # FL-20603;

(42) one (1) vacuum clean up users system equipped with a soybean flake vacuum baghouse (FL-20803), and exhausting at stack Pt # FL-20803;

(43) one (1) whole soybean garner scale, maximum capacity of 280.14 tons per hour, controlled by a heater and scale cyclone (CY-20101), and exhausting at stack Pt # BL-20;

(44) one (1) totally enclosed soybean feed drag conveyor (CV-2D102, feeding the heaters), maximum capacity of 280.14 tons per hour, controlled by a hot dehulling cyclone (CY-20101), and exhausting at stack Pt # BL-20;

(45) three (3) soybean heaters (HE-20102, 20103, and 20104), maximum total capacity of 284.14 tons per hour, controlled by a heater and scale cyclone (CY-20101), and exhausting at stack Pt # BL-20;

(46) one (1) totally enclosed soybean feed drag conveyor (CV-20104, feeding the jet dryers), maximum capacity of 280.14 tons per hour, controlled by a heater and scale cyclone (CY-20101), and exhausting at stack Pt # BL-20;

(47) three (3) soybean jet dryers, maximum total capacity of 277.04 tons per hour, controlled by six jet dryers cyclones (CY-20201A & B, 20202 A & B, and 20203 A & B), and exhausting at stack Pt # BL-20;

(48) three (3) aspirators controlled by a hull refining cyclone(CY-20701), and exhausting at stack Pt # BL-20;

(49) six (6) precrackers (ME-2001, 2002, 2003, 2004, 2066, and 2067), maximum total capacity of 277.04 tons per hour;

(50) six (6) CCD dryers(SP-2001, 2002, 2003, 2004, 2005, and 2006), maximum total capacity of 277.04 tons per hour, controlled by a ccd dryers cyclone (CY-20301), and exhausting at stack Pt # BL-20;

(51) three (3) totally enclosed hull screeners, maximum total capacity of 20 tons per hour;

(52) two(2) secondary de-hullers, maximum total capacity of 20 tons per hour,

(53) six (6) cracking rolls (ME-2005, 2006, 2007, 2008, 2068, and 2069), maximum total capacity of 277.04 tons per hour;

(54) six (6) cascade conditioners (HE-2010, 2011, 2012, 2013, 2020, and 2021), maximum total capacity of 277.04 tons per hour, controlled by a conditioner cyclone (CY-20306), and exhausting at stack Pt # BL-20;

(55) one (1) soybean screening surge bin, controlled by a bean screening surge bin baghouse (FL-20802), and exhausting at stack Pt # FL-20802;

(56) one (1) soybean pod grinding system equipped with a baghouse (FL-20305), and exhausting at stack Pt # FL-20305;

(57) six (6) totally enclosed soybean flaking drag conveyors, maximum capacity of 260.42 tons per hour, controlled by a flake filter (FL-20401), and exhausting at stack Pt # FL-20401;

(58) twenty (20) flaking rolls (ME-2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, and 2028), maximum total capacity of 260.42 tons per hour, controlled by a flake filter (FL-20401), and exhausting at stack Pt # FL-20401;

(59) one (1) soybean fines hammer mill (MR20701), controlled by a flake filter (FL-20401), and exhausting at stack Pt # FL-20401;

(60) one (1) totally enclosed flake drag conveyor (feeding the air break) maximum total capacity of 260.42 tons per hour;

(61) one (1) totally enclosed flake extractor seal screw conveyor (CV30103, feeding the extractor), maximum total capacity of 260.42 tons per hour;

(62) one (1) soybean oil extractor (ME3001), maximum capacity of 260.42 tons per hour of soybean flakes controlled by a mineral oil absorber (one column, TW30501), and exhausted at stack Pt. # BL30501;

(63) a set of evaporators, capacity 56.83 tons per hour of soybean oil, controlled by a mineral oil absorber, and exhausted at stack Pt. # BL30501;

(64) a set of condensers and water separator to separate hexane and water, capacity of 56.83 tons per hour of soybean oil, controlled by a mineral oil absorber, and exhausted at stack Pt. # BL30501;

(65) one (1) mineral oil absorber (TW -30501) column with a mineral oil recirculation rate of 70 gallons per minute, and gas discharge rate of 341 acfm at 72^0 F (L/G ratio of 0.205), capacity to control hexane emissions at a process weight rate of 213.11 tons per hour of meal cake, and exhausting at stack Pt. # BL 30501;

(66) one (1) totally enclosed DTDC feed drag conveyor (CV-3003), maximum capacity of 213.11 tons per hour;

(67) one (1) set of dryers (5 sections), and cooler (1 section), maximum capacity of 213.11 tons per hour, controlled by six (6) cyclones (CY-30301, 30302, 30303, 30304, 30305; and 30306 respectively);

(68) two (2) totally enclosed meal drag conveyors (CV30307 and 30308);

(69) one (1) totally enclosed finished meal weigh conveyor (WS-20601), maximum capacity of 213.11 tons per hour, controlled by a meal sizing and storage filter (FL-20501), and exhausting at stack Pt # FL-20501;

(70) one (1) paddle mixer (ME-20601), maximum capacity of 213.11 tons per hour;

(71) two (2) totally enclosed meal drag conveyors (CV-20601, and 20603), and one (1) totally enclosed bucket elevator (CV20602), maximum capacity of 213.11 tons per hour each, controlled by a meal sizing and storage filter (FL-20501), and exhausting at stack Pt # FL-20501;

(72) four (4) meal grinders (ME-4001, 4002, 4003, and 4004), maximum total capacity of 452 tons per hour, controlled by a meal sizing and storage filter (FL-20501), and exhausting at stack Pt # FL-20501;

(73) one (1) totally enclosed ground meal drag conveyor (CV-50202), maximum capacity of 452 tons per hour, controlled by a meal sizing and storage filter (FL-20501), and exhausting at stack Pt # FL-20501;

(74) four (4) totally enclosed ground meal screw conveyors (FD-50201, 2, 3, & 4), and four (4) ground meal screens (SC20501, 2, 3, and 4), maximum total capacity of 452 tons per hour;

(75) one (1) totally enclosed ground screened meal drag conveyor (CV-50203, transferring to weighing & storage), maximum capacity of 213.11 tons per hour, controlled by a meal sizing and storage filter (FL-20501), and exhausting at stack Pt # FL-20501;

(76) one (1) totally enclosed ground screened meal drag conveyor (CV-50204, transferring to recycle), maximum capacity of 239 tons per hour, controlled by a meal sizing and storage filter (FL-20501), and exhausting at stack Pt # FL-20501;

(77) five (5) meal storage bins (TK 20601, 20602, 20603, 20604, and 20902), maximum capacity of 150,000 cuft (3,000 tons) each, controlled by a meal sizing and storage filter (FL-20501), and exhausting at stack Pt. #FL 20501;

(78) four (4) totally enclosed belt conveyors (CV20603, CV20603A, CV20608A & CV20608B), feeding to meal/hull load out elevators or bins, maximum system capacity of 750 tons per hour, controlled by a meal load out filter (FL-20601), and exhausting at stack Pt # FL-20601;

(79) one (1) meal loadout bucket elevator (CV-20604), maximum capacity of 750 tons per hour, controlled by a meal load out conveyor #1 filter (FL-20601), and exhausting at stack Pt # FL-20601;

(80) one (1) hulls loadout bucket elevator, maximum capacity of 750 tons per hour, controlled by a meal load out conveyor #1 filter (FL-20601), and exhausting at stack Pt # FL-20601;

(81) three (3) meal loadout bins, maximum capacity of 7,000 cuft each, two (2) controlled by a meal filter (FL-20601), and exhausting at stack Pt. #FL 20601, and one (1) by a meal storage filter (FL 20602), and exhausting at stack Pt. #FL 20602;

(82) three (3) totally enclosed belt conveyors (CV20605A, CV20605B, & CV20607A), feeding to meal/hull loadout elevators or bins, maximum system capacity of 1,500 tons per hour, controlled by a meal filter (FL-20602), and exhausting at stack Pt # FL-20602;

(83) three (3) totally enclosed bucket elevators (CV-20607, CV20608, and CV20609), feeding to meal/hull loadout conveyors or bins, maximum system capacity of 1,500 tons per hour, controlled by a meal load out conveyor #2 filter (FL-20602), and exhausting at stack Pt # FL-20602;

(84) one (1) hull grinder surge bin (TK -20802), controlled by a hull grinder surge bin filter (FL-20801), and exhausting at stack Pt # FL-20801;

(85) two (2) totally enclosed conveyors (one screw (CV20802), and one drag (CV20803)), feeding to hull grinding, maximum system capacity of 250 tons per hour, controlled by a hull grinder surge bin filter (FL-20801), and exhausting at stack Pt # FL-20801;

(86) three (3) hull grinders, maximum system capacity of 250 tons per hour, controlled by a hull load out system filter (FL-20903), and exhausting at stack Pt # FL-20903;

(87) one (1) hull receiver (CY-20903), controlled by a hull load out system filter (FL-20903), and exhausting at stack Pt # FL-20903;

(88) one (1) hulls bin (TK-20901), maximum capacity of 14,000 cuft, controlled by a hull load out system filter (FL-20903), and exhausting at stack Pt # FL-20903;

(89) two (2) totally enclosed hulls bin drag conveyors (CV-20909 & 20911, transferring hulls to hulls load out elevator), controlled by a hull load out system filter (FL-20903), and exhausting at stack Pt # FL-20903

(90) one (1) hull pellet mill (ME-9012), maximum capacity of 30 tons per hour;

(91) three (3) totally enclosed conveyors (bucket elevator (CV-20903), two drag (CV20902, & CV20904)), feeding to hull storage, maximum system capacity of 30 tons per hour, controlled by a hull load out system filter (FL-20903), and exhausting at stack Pt # FL-20903;

(92) one (1) hull pellet mill cooler (HE-9011), maximum capacity of 30 tons per hour, controlled by a pellet cooler cyclone (CY-20901), and exhausting at stack Pt. # CY20901;

(93) one (1) ground hulls/pellets bin, nominal capacity of 150,000 cuft;

(94) one (1) lecithin grinding mill (ME-41502), maximum capacity of 1 ton per hour;

(95) two (2) totally enclosed conveyors (one bucket elevator (CV-41505), and one drag(CV-41504)), feeding to lecithin packaging, maximum capacity of 1 ton per hour each, controlled by a lecithin grinding mill filter (CY-41501), and exhausting at stack Pt. # CY-41501;

(96) two (2) totally enclosed ground lecithin drag conveyors (CV-41502 & 41503), maximum capacity of 1 ton per hour each;

(97) two (2) lecithin load out bins (TK-41601 & 41602), controlled by a lecithin grinding mill filter (CY-41501), and exhausting at stack Pt. # CY-41501;

(98) one (1) lecithin packaging equipment (ME-7301), maximum capacity of 1 ton per hour;

(99) one (1) rail car unloading DE silo (TK-41702), controlled by a filter;

(100) one (1) truck car unloading bleaching silo (TK-51104), controlled by a filter;

(101) one (1) citric acid bag unloading unloader (ME-51101);

(102) two (2) acid oil tanks (TK-50903 & 50905), controlled by a scrubber (SC-50901);

(103) one (1) continuous acid decanter (TK-50906), controlled by a scrubber (SC-50901);

(104) one (1) acidulation tank (TK-50908), vented to continuous acid decanter (TK-50906);

(105) two (2) sulfuric acid storage tanks (TK-50902 & 31205);

(106) one (1) D.E. bulk bag unloader (ME-50304);

(107) one (1) kaolin tank (TK-4017), nominal capacity of 5,000 cuft, controlled by a filter (FL-20605), and exhausting at stack Pt # FL-20605;

(108) one (1) D.E. bulk bag unloader (ME-50201);

(109) one (1) D.E. bulk bag unloader (ME-50301);

(110) one (1) D.E. bulk bag unloader (ME-50305);

(111) one (1) D.E. bulk bag unloader (ME-52401);

(112) one (1) D.E. bulk bag unloader (ME-52301);

(113) one (1) silica bulk bag unloader (ME-50101);

(114) one (1) carbon bulk bag unloader (ME-50202);

(115) two (2) nickel catalyst bulk bag unloaders (ME-50303A & B);

(116) two (2) main boilers # 1 & 2 (HE-5101 & 5102), 200 million Btu/hour each, natural gas or distillate oil fired, controlled by low NOx burners and flue gas recirculation, and exhausting to a single stack (TW5101);

(117) two (2) refinery boilers # 1 & 2 (ME-5001A & B), 10 million Btu/hour each, natural gas fired, controlled by low NOx burners and flue gas recirculation, and exhausting to two separate stacks (ME5001 A & B);

(118) one (1) hydrogen plant reformer boiler, 20 million Btu/hour, natural gas fired, controlled by low NOx burner and flue gas recirculation, and exhausting at stack Pt. # (F400);

(119) one (1) 500 HP firewater pump diesel engine (MO-5001), capacity 3000 gallons per minute, and exhausting to at stack Pt. # (MO5001);

(120) one (1) receiving area baghouse (DF-1) with a gas flow rate of 15,000 scfm at 70^0 F, and exhausting at stack Pt. # DF1;

(121) one (1) receiving area baghouse (DF-2) with a gas flow rate of 7,000 scfm at 70^0 F, and exhausting at stack Pt. # DF2;

(122) one (1)receiving area baghouse (DF-3) with a gas flow rate of 7,000 scfm at 70^0 F, and exhausting at stack Pt. # DF3;

(123) one (1) barge receiving system baghouse (DF-4) with a gas flow rate of 3,450 scfm at 70^0 F, and exhausting at stack Pt. # DF4;

(124) one (1) barge loading baghouse (DF-5) with a gas flow rate of 6,650 scfm at 70^0 F, and exhausting at stack Pt. # DF5;

(125) one (1) barge receiving area baghouse (DF-6) with a gas flow rate of 10,700 scfm at 70^0 F, and exhausting at stack Pt. # DF6;

(126) one (1) elevator screening baghouse (DF-7A) with a gas flow rate of 5,200 scfm at 70^0 F, and exhausting at stack Pt. # DF7A;

(127) one (1) transfer #1 baghouse (DF-7B) with a gas flow rate of 6,500 scfm at 70^0 F, and exhausting at stack Pt. # DF7B;

(128) one (1) transfer #2 baghouse (DF-7C) with a gas flow rate of 6,500 scfm at 70^0 F, and exhausting at stack Pt. # DF7C;

(129) one (1) transfer #3 baghouse (DF-7D) with a gas flow rate of 6,500 scfm at 70^0 F, and exhausting at stack Pt. # DF7D

(130) four (4) steel tanks storage baghouses (DF-8, 9, 10, and 11) with a gas flow rate of 1,500 scfm each at 70^0 F, and exhausting at stack Pts # DF 8, 9, 10, and 11;

(131) two (2) grain reclaim systems baghouses #1 & 2 (DF-12 & 13) with a gas flow rate of 8,500, and 5,500 scfm at 70^0 F, respectively, and exhausting at stack Pt. # DF12 &13 respectively;

(132) one (1) rail and barge meal/grain/hull loadout baghouse (DF-18A) with a gas flow rate of 29,000 scfm at 70^0 F, and exhausting at stack Pt. # DF18A;

(133) one (1) truck meal/grain/hull loadout baghouse (DF-18B) with a gas flow rate of 28,500 scfm at 70^0 F, and exhausting at stack Pt. # DF18B;

(134) one (1) meal car vacuum baghouse (FL-20603) with a gas flow rate of 1,800 scfm at 70^0 F, and exhausting at stack Pt. # FL20603;

(135) one (1) soybean flake vacuum baghouse (FL-20803) with a gas flow rate of 1,500 scfm at 70^0 F, and exhausting at stack Pt. # FL20803;

(136) one (1) heater and scale cyclone (CY-20101) with a gas flow rate of 21,000 acfm at 2.3% moisture and 140^0 F, and exhausting at stack Pt. # BL-20;

(137) one (1) hull refining cyclone (CY-20701) with a gas flow rate of 10,000 acfm @ 2.3% moisture & 140^0 F, and exhausting at stack Pt. # BL-20;

(138) six (6) jet dryers cyclones (CY 20201 A & B, 20202 A & B, 20203 A & B) with a discharge total gas flow rate of 43,632 acfm @ 2.3% moisture & 140^0 F, and exhausting at stack Pt. # BL-20;

(139) one (1) CCD cyclone (CY-20301) with a gas flow rate of 65,000 acfm @ 2.3% moisture & 165^0 F, and exhausting at stack Pt. # BL-20;

(140) one (1) conditioner cyclone (CY-20306) with a gas flow rate of 65,000 acfm @ 2.3% moisture & 150^0 F, and exhausting at stack Pt. # BL-20;

(141) one (1) bean screening surge bin baghouse (FL-20802) with a gas flow rate of 1,500 scfm at 70^0 F, and exhausting at stack Pt. # FL20802;

(142) one (1) pod grinding receiver baghouse (FL-20305) with a gas flow rate of 1,500 scfm at 70^0 F, and exhausting at stack Pt. # FL20305;

(143) one (1) flaker baghouse (FL-20401) with a gas flow rate of 35,000 acfm @ 2.3 % moisture at 142^0 F, and exhausting at stack Pt. # FL-20401;

(144) one (1) meal dryer section # 1 cyclone (CY-30301) with a gas flow rate of 28,400 acfm at 177^0 F, and exhausting at stack Pt. #CY30301;

(145) one (1) meal dryer section # 2 cyclone (CY-30302) with a gas flow rate of 22,600 acfm at 140^0 F, and exhausting at stack Pt. #CY30302;

(146) one (1) meal dryer section # 3 cyclone (CY-30303) with a gas flow rate of 22,600 acfm at 132^0 F, and exhausting at stack Pt. #CY30303;

(147) one (1) meal dryer section # 4 cyclone (CY-30304) with a gas flow rate of 20,800 acfm at 119^0 F, and exhausting at stack Pt. #CY30304;

(148) one (1) meal dryer section # 5 cyclone (CY-30305) with a gas flow rate of 20,800 acfm at 119^0 F, and exhausting at stack Pt. #CY30304;

(149) one (1) meal cooler section cyclone (CY-30306) with a gas flow rate of 19,700 acfm at 101^0 F, and exhausting at stack Pt. #CY30306;

(150) one (1) meal sizing and storage baghouse (FL-20501), with a gas flow rate of 34,000 acfm @ 2.3 % moisture, and at 120^0 F, and exhausting at stack Pt # FL-20501;

(151) two (2) meal load out conveyors # 1& 2 baghouses (FL-20601 and 20602) with a gas flow rate of 6,000 scfm each at 70^0 F, and exhausting at stack Pt. # FL20601 and 20602) respectively;

(152) one (1) hull grinder surge bin filter (FL-20801), with a gas flow rate of 8,000 acfm @ 2.3 % moisture, and at 80^0 F, and exhausting at stack Pt # FL-20801;

(153) one (1) hull load out system filter (FL-20903), with a gas flow rate of 20,000 acfm @ 2.3 % moisture, and at 180^0 F, and exhausting at stack Pt # FL-20903;

(154) one (1) pellet cooler cyclone (CY-20901), with a gas flow rate of 14,000 acfm @ 2.3 % moisture, and at 160^0 F, and exhausting at stack Pt. # CY20901;

(155) one (1) lecithin grinding mill filter (CY-41501), with a gas flow rate of 4,000 acfm @ 2.3 % moisture, and at 120^0 F, and exhausting at stack Pt. # CY-41501;

(156) one (1) rail car unloading DE silo filter with a gas flow rate of 1,870 scfm, and at 70^0 F;

(157) one (1) kaolin bin tank baghouse (FL-20605) with a gas flow rate of 1,800 scfm at 70^0 F, and exhausting at stack Pt. # FL-20605;

(158) one (1) truck car unloading bleaching silo filter with a gas flow rate of 1,870 scfm at 70^0 F;

(159) one (1) acidulation tank scrubber (SC-50901), with a gas flow rate of 5,318 acfm at 80^0 F and scrubbing liquid flow rate of 69.13 gallons per minute of 5 % NaOH, exhausting at stack Pt. # BL50901;

(160) one (1) fire pump diesel engine fuel oil tank (TK-5002), nominal capacity of 600 gallons;

(161) four (4) crude soy oil storage tanks (soybean oil), nominal capacity of 487,138 gallons each;

(162) one (1) soybean oil refinery with surface condensers and hot well;

(163) two (2) extraction system miscella (hexane & soybean oil) emergency dump tanks (nominal capacity of 45,000 gallons each), controlled by a mineral oil absorber (TW-30501) column, and exhausting at stack Pt. #BL 30501;

(164) two (2) deodorizer vapors scrubber to scrub deodorizer distillate vapors which have been removed from the soybean oil;

(165) one (1) solvent (hexane) work tank (TK-3001), nominal capacity of 25,000 gallons, controlled by a mineral oil absorber (TW-30501) column, and exhausting at stack Pt. #BL 30501;

(166) one (1) full miscella (oil and hexane) tank (TK-3003), nominal capacity of 15,000 gallons, controlled by a mineral oil absorber (TW-30501) column, and exhausting at stack Pt. #BL 30501;

(167) two (2) solvent storage (hexane) tanks (TK-3004 & 3005), nominal capacity of 30,000 gallons each, controlled by a mineral oil absorber (TW-30501) column, and exhausting at stack Pt. #BL 30501;

(168) one (1) #2 fuel oil storage tank (TK-5103), nominal capacity of 46,000 gallons;

(169) one (1) oil/acetone evaporator feed tank (TK-7101), nominal capacity of 24,000 gallons;

(170) two (2) crude oil tanks (TF-0001A & B), nominal capacity of 468,000 gallons each;

(171) one (1) crude oil day tank (TS-0002), nominal capacity of 5,500 gallons;

(172) one (1) precoat tank (TS-0003), nominal capacity of 5,000 gallons;

(173) one (1) slurry tank (TS-0004), nominal capacity of 2,650 gallons;

(174) one (1) filtered oil tank (TS-0005), nominal capacity of 6,675 gallons;

(175) one (1) hydrator (TS-0006), nominal capacity of 7,425 gallons;

(176) one (1) wet gums tank (TS-0007), nominal capacity of 400 gallons;

(177) two (2) degummed oil tanks (Future A & B), nominal capacity of 468,000 gallons each;

(178) one (1) degummed oil tank (TS-0010), nominal capacity of 3,300 gallons;

(179) one (1) lecithin tank (TS-0012A), nominal capacity of 13,200 gallons;

(180) five (5) lecithin tanks (TS0012B to D, TS0013, and TS0014), nominal capacity of 6,600 gallons each;

(181) one (1) salad oil storage tank (TS-0015), nominal capacity of 7,900 gallons;

(182) one (1) fatty acid storage tank (TS-0016), nominal capacity of 7,900 gallons;

(183) one (1) acetic anhydride storage tank (TS-0018), nominal capacity of 7,000 gallons;

(184) one (1) blend tank (TS-0021), nominal capacity of 1,175 gallons;

(185) one (1) miscella tank (TS-0027), nominal capacity of 1,175 gallons;

(186) two (2) degummed oil storage tanks (TF-0101A & B), nominal capacity of 468,000 gallons each;

(187) one (1) start-up tank (TS-0102), nominal capacity of 26,400 gallons;

(188) one (1) caustic mix tank (TS-1001), nominal capacity of 400 gallons;

(189) one (1) silica mix tank (TS-1003), nominal capacity of 4,000 gallons;

(190) one (1) soapstock tank (TS-1004), nominal capacity of 1,900 gallons;

(191) one (1) precoat mix tank (TS-2001), nominal capacity of 3,600 gallons;

(192) one (1) clay slurry tank (TS-2003), nominal capacity of 3,600 gallons;

(193) one (1) bleached oil holding tank (TS-2101), nominal capacity of 3,600 gallons, controlled by nitrogen blanket;

(194) one (1) drip pan tank (TS-2102), nominal capacity of 900 gallons;

(195) two (2) R/B oil tanks (TS-2201 A & B), nominal capacity of 264,000 gallons each, controlled by nitrogen blanket;

(196) one (1) bleached cottonseed oil tank (TF-2202), nominal capacity of 52,700 gallons, controlled by nitrogen blanket;

(197) two (2) rework oil tanks (TF-2203 A & B), nominal total capacity of 52,700 gallons, controlled by nitrogen blanket;

(198) one (1) recovered oil tank (TS-2204), nominal capacity of 13,200 gallons;

(199) one (1) scrap oil tank (TS-2205), nominal capacity of 1,275 gallons;

(200) one (1) C/S oil tank (TS-2206), nominal capacity of 52,700 gallons, controlled by nitrogen blanket;

(201) one (1) refined oil tank (TF-2207), nominal capacity of 52,700 gallons, controlled by nitrogen blanket;

(202) six (6) multi oil tanks (TF-2208 A to F), nominal capacity of 26,400 gallons each, controlled by nitrogen blanket;

(203) two (2) filtered feed oil tanks (TP-3002 A & B), nominal capacity of 10,500 gallons each, and controlled by a condenser;

(204) two (2) charge tanks (TP-3003 A & B), nominal capacity of 7,900 gallons each, and controlled by a condenser;

(205) one (1) precoat tank (TS-3101), nominal capacity of 1,700 gallons, and controlled by nitrogen blanket;

(206) one (1) fresh catalyst tank (TS-3102), nominal capacity of 400 gallons, and controlled by nitrogen blanket;

(207) two (2) reuse catalyst tanks (TS-3103 A & B), nominal capacity of 1,700 gallons each, and controlled by nitrogen blanket;

(208) two (2) polish filter feed tanks (TS-3105 A & B), nominal capacity of 1,700 gallons each, and controlled by nitrogen blanket;

(209) one (1) re-use catalyst tank (TS-3109), nominal capacity of 1,500 gallons, and controlled by nitrogen blanket;

(210) seven (7) base stock tanks (TF-4001 A to G), nominal capacity of 52,700 gallons each, and controlled by nitrogen blanket;

(211) one (1) C/S stearine oil tank (TS-4002), nominal capacity of 13,200 gallons, and controlled by nitrogen blanket;

(212) one (1) S/B stearine oil tank (TS-4003), nominal capacity of 13,200 gallons, and controlled by nitrogen blanket;

(213) six (6) blend tanks (TF-4004 A to F), nominal capacity of 52,700 gallons each, and controlled by nitrogen blanket;

(214) one (1) P/O stearine tank (TS-4005), nominal capacity of 26,400 gallons, and controlled by nitrogen blanket;

(215) two (2) measuring tanks (TS-5001 A & B), nominal capacity of 1,100 gallons each, and controlled by a condenser;

(216) eight (8) finish oil tanks (TF-6001 A to H), nominal capacity of 52,700 gallons each, and controlled by nitrogen blanket;

(217) four (4) finish oil tanks (TF-6001 I to L), nominal capacity of 26,400 gallons each, and controlled by nitrogen blanket;

(218) two (2) salad oil tanks (TF-6001 M & N), nominal capacity of 264,000 gallons each, and controlled by nitrogen blanket;

(219) one (1) BO oil tank (TF-60010), nominal capacity of 132,000 gallons, and controlled by nitrogen blanket;

(220) three (3) salad oil tanks (TF-6002 A to C), nominal capacity of 132,000 gallons each, and controlled by nitrogen blanket;

(221) one (1) liquid shortening tank (TS-6003), nominal capacity of 26,400 gallons, and controlled by nitrogen blanket;

(222) one (1) caustic storage tank (TS-8002), nominal capacity of 8,000 gallons;

(223) one (1) distillate storage tank (TS-8004), nominal capacity of 26,400 gallons;

(224) one (1) emulsifier storage tank (TS-8005), nominal capacity of 13,200 gallons;

(225) two (2) propylene glycol storage tanks (TS-9001 & 9002), nominal capacity of 14,000 gallons each;

(226) one (1) sulfuric acid storage tank (TS-11001), nominal capacity of 4,600 gallons, controlled by a demister;

(227) two (2) batch acidulation tanks (TS-11005 A & B), nominal capacity of 4,000 gallons each, controlled by an acidulation tank scrubber (SC-50901), and exhausting at stack Pt. # BL50901;

(228) one (1) soapstock tank (TS-11008), nominal capacity of 10,500 gallons;

(229) one (1) ammonia storage tank (TS-11009), nominal capacity of 3,000 gallons;

(230) two (2) crude oil tanks (TF-0102 A & B), nominal capacity of 65,900 gallons each;

(231) two (2) shift tanks (TK-3006 & 3007), nominal capacity of 32,900 gallons each; and

(232) one (1) recovered oil tank (TK7105), nominal capacity of 600 gallons.

Construction Conditions

General Construction Conditions

1. That the data and information supplied with the application shall be considered part of this permit. Prior to any proposed change in construction which may affect allowable emissions, the change must be approved by the Office of Air Management (OAM).

2. That this permit to construct does not relieve the permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

Effective Date of the Permit

3. That pursuant to IC 13-15-5-3, and the federal requirements codified at 40 CFR 124.15(b), this permit shall become effective thirty (30) days after the service of notice of this decision.

4. That pursuant to 326 IAC 2-2-8 (Revocation of Permits), the approval to construct shall become invalid if construction is not commenced within eighteen (18) months after receipt of this approval, if construction is discontinued for a period of eighteen (18) months or more, or if construction is not completed within a reasonable time.

5. That notwithstanding Construction Condition No. 6, all requirements and conditions of this construction permit shall remain in effect unless modified in a manner consistent with procedures established for modifications of construction permits pursuant to 326 IAC 2 (Permit Review Rules).

First Time Operation Permit

6. That this document shall also become a first-time operation permit pursuant to 326 IAC 2-1-4 (Operating Permits) when, prior to start of operation, the following requirements are met:

   (a) The attached affidavit of construction shall be submitted to the Office of Air Management (OAM), Permit Administration & Development Section, verifying that the facilities were constructed as proposed in the application. The facilities covered in the Construction Permit may begin operating on the date the Affidavit of Construction is postmarked or hand delivered to IDEM.

   (b) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.

   (c) Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section and attach it to this document.

   (d) The operation permit will be subject to annual operating permit fees pursuant to 326 IAC 2-7-19(Fees).

(e) Pursuant to 326 IAC 2-7-4, the permittee shall apply for a Title V operating permit within twelve (12) months after the source becomes subject to Title V. This 12-month period starts at the postmarked submission date of the Affidavit of Construction. If the construction is completed in phases, the 12-month period starts at the postmarked submission date of the Affidavit of Construction that triggers the Title V applicability. The operation permit issued shall contain as a minimum the conditions in the Operation Conditions section of this permit.

7. That the low NOx burners and flue gas recirculation systems shall be installed on all boilers.

8. That the grain dryer shall be equipped with a settling chamber and column plate (external discharge only) with perforations of not greater than 0.094 inches in diameter; and a low NOx burner. Where woven wire is used as external sheeting column plate, compliance with the perforation size limit shall be determined as follows:

Equivalent diameter will be determined by the following formula:

D_h = LW/(L+W), where D_h is the hydraulic diameter and L and W are the screen opening dimensions.

Where the dryer design incorporates 0.083 inch diameter or small column plate perforations, the requirement for the settling chamber is waived.

9. That the level indicators shall be installed at the cones of the DTDC dryers and cooler cyclones.

10. That the soybean oil dryer shall be installed.

11. That a refrigerated condenser shall be installed in the extraction plant.

<u>NSPS Reporting Requirement</u>

12. That pursuant to the New Source Performance Standards (NSPS), Part 60.7, Subpart A, the source owner/operator is hereby advised of the requirement to report the following for the boilers and vegetable oil storage tanks equal to or larger than 40 cubic meters (10,568 gallons) in volume, at the appropriate times:

(a) Commencement of construction date (no later than 30 days after such date);

(b) Anticipated start-up date (not more than 60 days or less than 30 days prior to such date);

(c) Actual start-up date (within 15 days after such date); and

(d) Date of performance testing for the boilers (at least 30 days prior to such date), when required by a condition elsewhere in this permit.

(e) Notification of the date upon which demonstration of the performance of the boilers CEMs commences, postmarked not less than 30 days prior to such date.

(f) Notification of the specific provisions of # 60.7 (# 60.7 (a), (b), or (c)) :These provisions shall apply as of initial start-up.

Reports are to be sent to:

Compliance Data Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, IN 46206-6015

The application and enforcement of these standards have been delegated to the IDEM-OAM. The requirements of 40 CFR Part 60 are also federally enforceable.

13. That when the facility is constructed and placed into operation the following operation conditions shall be met:

Operation Conditions

General Operation Conditions

1. That the data and information supplied in the application shall be considered part of this permit. Prior to any change in the operation which may result in an increase in allowable emissions exceeding those specified in 326 IAC 2-1-1 (Construction and Operating Permit Requirements), the change must be approved by the Office of Air Management (OAM).

2. That the permittee shall comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder.

Preventive Maintenance Plan

3. That pursuant to 326 IAC 1-6-3 (Preventive Maintenance Plans), ConAgra Soybean Processing Company shall prepare and maintain a preventive maintenance plan, including the following information:

    (a) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices.

    (b) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions.

    (c) Identification of the replacement parts which will be maintained in inventory for quick replacement.

    The preventive maintenance plan shall be submitted to IDEM, OAM upon request and shall be subject to review and approval.

Transfer of Permit

4. That pursuant to 326 IAC 2-1-6 (Transfer of Permits):

    (a) In the event that ownership of this soybean processing plant is changed, ConAgra Soybean Processing Company shall notify OAM, Permit Branch, within thirty (30) days of the change. Notification shall include the date or proposed date of said change.

(b) The written notification shall be sufficient to transfer the permit from ConAgra Soybean Processing Company to the new owner.

(c) The OAM shall reserve the right to issue a new permit.

Permit Revocation

5. That pursuant to 326 IAC 2-1-9(a) (Revocation of Permits), this permit to construct and operate may be revoked for any of the following causes:

(a) Violation of any conditions of this permit.

(b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this permit.

(c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this permit shall not require revocation of this permit.

(d) Noncompliance with orders issued pursuant to 326 IAC 1-5 (Episode Alert Levels) to reduce emissions during an air pollution episode.

(e) For any cause which establishes in the judgment of IDEM, the fact that continuance of this permit is not consistent with purposes of 326 IAC 2-1 (Permit Review Rules).

Availability of Permit

6. That a copy of this permit shall be available on the premises of the source.

Performance Testing

7. (a) That pursuant to 40 CFR 60, Subpart DD, and 40 CFR 60, subpart Db, compliance tests; and opacity observations shall be performed for the affected facilities as per U.S. EPA approval (U.S. EPA Letter of 8/7/98), as shown below to comply with the standards in Operation Condition Nos. 12, 13, and 22, within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up.

Facilities	Pollutant/Opacity
Receiving area baghouse (DF-1)	PM10/Opacity
Receiving area baghouse (DF-2)	PM10/Opacity
Receiving area baghouse (DF-3)	PM10/Opacity
Barge receiving scale system baghouse (DF-4)	PM10/Opacity
Barge loading baghouse (DF-5)	PM10/Opacity
Barge receiving area baghouse (DF-6)	PM10/Opacity
Elevator screening baghouse (DF-7A)	PM10/Opacity

Transfer #1 baghouse (DF-7B)	PM10/Opacity
Transfer #2 baghouse (DF-7C)	PM10/Opacity
Transfer #3 baghouse (DF-7D)	PM10/Opacity
Steel tanks storage baghouses (DF-8, 9, 10, and 11)	PM10/Opacity
Grain reclaim system #1 baghouse (DF-12)	PM10/Opacity
Grain reclaim system #2 baghouse (DF-13)	PM10/Opacity
Truck/rail, meal/grain/hull loadout baghouse (DF-18A) when loading grain only	PM10/Opacity
Truck/rail, meal/grain/hull loadout baghouse (DF-18B) when loading grain only	PM10/Opacity
Bean screening surge bin baghouse (FL-20802)	PM10/Opacity
Main plant boilers (HE5101 and HE5102)	NOx

Boilers HE5101 and HE5102 test for NOx - The initial performance test for NOx shall be conducted over a minimum of 24 consecutive steam generating unit operating hours at maximum heat input capacity to demonstrate compliance with the nitrogen oxides emission limit of 0.035 lb/MMBtu, when combusting natural gas.

(b). That pursuant to 326 IAC 6-3 (Construction and Operating Permit Requirements), ConAgra Soybean Processing Company shall develop a representative stack testing plan which identifies the method in which emissions from the following sources shall be evaluated to determine initial compliance with Operation Condition Nos. 10, 12, and 22, within 18 months of startup. The facilities listed in condition 7(a) above may be proposed as representative facilities.

Facilities	Pollutant
Hot dehulling system stack #BL-20 (Whole soybean garner scale & heaters, Jet dryers, CCD dryers, Dehulling aspirators, Dehulling conditioners)	PM10
Mineral oil absorber	VOC, Mineral oil flow rate
DTDC meal dryer (Cyclones CY-30301)	PM10, VOC
DTDC meal cooler (Cyclone CY-30306)	PM10, VOC

Meal grinding and screening system (Meal sizing and screening baghouse FL-20501)	PM10
Rail & barge meal/grain/hull loadout baghouse (DF-18A) when loading meal only	PM10
Refinery boiler (ME5101A or ME5101B)	NOx
Reformer boiler (F400)	NOx
Grain dryer	NOx/Temperature (Manufacturer's data or lab test acceptable)
Main plant boilers (HE5101 or HE5102)	CO
Refinery boiler (ME5101A or ME5101B)	CO
Reformer boiler (F400)	CO

ConAgra Soybean Processing Corporation shall submit the stack testing plan to IDEM after the entire source has achieved a successful start-up. This plan shall be reviewed and approved by IDEM. This plan shall outline the measures to be taken to demonstrate compliance with permitted emission rates and shall provide that compliance demonstrations for facilities except the facilities in (a) be completed within 18 months of the date of the entire source start-up. The stack tests shall be performed for the facilities in (a) within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up of the facilities in (a). These tests shall be performed according to 326 IAC 3-2.1 (Source Sampling Procedures) using the methods specified in the rule or as approved by the Commissioner.

(a) A test protocol shall be submitted to the OAM, Compliance Data Section, 35 days in advance of the test.

(b) The Compliance Data Section shall be notified of the scheduled actual test date at least two (2) weeks prior to the date.

(c) All test reports must be received by the Compliance Data Section within 45 days of completion of the testing.

(d) Whenever the results of the stack test performed exceed the level specified in this permit, appropriate corrective actions shall be implemented within thirty (30) days of receipt of the test results. These actions shall be implemented immediately unless notified by OAM that they are acceptable. The Permittee shall minimize emissions while the corrective actions are being implemented.

(e) Whenever the results of the stack test performed exceed the level specified in this permit, a second test to demonstrate compliance shall be performed within 120 days. Failure of the second test to demonstrate compliance may be grounds for immediate revocation of this permit to operate the affected facility.

Malfunction Condition

8. That pursuant to 326 IAC 1-6-2 (Records; Notice of Malfunction):

(a) A record of all malfunctions, including startups or shutdowns of any facility or emission control equipment, which result in violations of applicable air pollution control regulations or applicable emission limitations shall be kept and retained for a period of three (3) years and shall be made available to the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM) or appointed representative upon request.

(b) When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour and has the potential to cause the release of a regulated air pollutant at a level that exceeds that specified by this permit, said condition shall be reported to OAM, using the Malfunction Report Forms (2 pages). Notification shall be made by telephone or facsimile, as soon as practicable, but in no event later than four (4) daytime business hours after the beginning of said occurrence.

(c) Failure to report a malfunction of any emission control equipment shall constitute a violation of 326 IAC 1-6, and any other applicable rules. Information of the scope and expected duration of the malfunction shall be provided, including the items specified in 326 IAC 1-6-2(a)(1) through (6).

(d) Malfunction is defined as any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. [326 IAC 1-2-39]

NOx BACT for Boilers and Grain Dryer

9. That pursuant to 326 IAC 2-2, and 40 CFR Part 52.21, NOx emissions from the two main plant boilers, two refinery boilers, one reformer boiler, and grain dryer shall comply with the Best Available Control Technology (BACT). The BACT for these units shall be:

(a) (i) the two natural gas/distillate oil fired main boilers shall not exceed the allowable NOx emissions of 0.0350, and 0.087 pounds per million Btu heat input, when combusting natural gas, and distillate oil respectively,

(ii) the three natural gas fired refinery, and reformer boilers shall not exceed the allowable NOx emissions of 0.0365 pounds per million Btu heat input, and

(iii) the grain dryer shall not exceed the allowable NOx emissions of 0.033 pounds per million Btu heat input;

(b) the boilers shall be equipped with the low NOx burners, and the flue gas recirculation systems; and

(c) the grain dryer shall be equipped with the low NOx burner.

This will also satisfy the requirements of 40 CFR 60.44b, Subpart Db, and 326 IAC 12 (Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units); and 326 IAC 6-2 for the two main plant boilers.

CO BACT for Boilers and Grain Dryer

10. That pursuant to 326 IAC 2-2, and 40 CFR Part 52.21, CO emissions from the two main plant boilers, two refinery boilers, one reformer boiler, and grain dryer shall comply with the Best Available Control Technology (BACT). The BACT for these units shall be:

(a) (i) the boilers shall not exceed the allowable CO emissions of 0.074 pounds per million Btu heat input, when combusting natural gas;

(ii) the grain dryer shall not exceed the allowable CO emissions of 0.12 pounds per million Btu heat input; and

(b) the permittee shall minimize the carbon monoxide emissions from the combustion boilers, and the dryer through the use of combustion controls on each boiler, and the dryer. The boilers controls will measure the oxygen content of the flue gas to determine the efficient operating conditions.

NOx NSPS Requirements

11. That

(a) pursuant to 326 IAC 12, and 40 CFR 60.44b (a), Subpart Db, the owner or operator shall not cause to be discharged into the atmosphere from the two main plant boilers any gases that contain nitrogen oxides (expressed as NO_2) in excess of 0.20 lb/million Btu, and the nitrogen oxide standard shall apply at all times including the period of start-up, shutdown, or malfunction emissions;

(b) pursuant to 326 IAC 12, and 40 CFR 60.48b (b), (c), (d), and (e), Subpart Db,

(i) the owner or operator shall install, calibrate, maintain, and operate a continuous monitoring system for measuring nitrogen oxides emissions discharged to the atmosphere from the two main plant boilers, and record the output of the system;

(ii) the continuous monitoring system shall be operated and data recorded during all periods of operation of the two main plant boilers except for continuous monitoring system breakdowns and repairs. Data shall be recorded during calibration checks, and zero and span adjustments;

(iii) the 1- hour average nitrogen oxides emission rates measured by the continuous nitrogen oxides monitor shall be expressed in ng/J or lb/million Btu heat input and shall be used to calculate the average emission rates. The 1-hour averages shall be calculated using the data points required under 40 CFR 60.13 (b). At least two data points must be used to calculate each 1-hour average;

(iv) the procedures under 40 CFR 60.13 shall be followed for installation, evaluation, and operation of the continuous monitoring systems. The span value for natural gas combustion, the nitrogen oxides span values shall be 500 ppm. All span values shall be rounded to the nearest 500 ppm; and

(v) When nitrogen oxides emission data are not obtained because of continuous monitoring system break-downs, repairs, calibration checks and zero and span adjustments, emission data will be obtained by using standby monitoring systems, Method 7, Method 7A, or other approved reference methods to provide emission data for a minimum of 75 percent of the operating hours in each steam generating unit operating day, in at least 22 out of 30 successive steam generating unit operating days.

(c) pursuant to 326 IAC 12, and 40 CFR 60.49b(g), Subpart Db, the owner or operator shall report and keep records as required in 40 CFR 60.49b.

PM10 BACT Requirements

12. That pursuant to 326 IAC 2-2, and 40 CFR Part 52.21, PM10 emissions from the following facilities shall comply with the Best Available Control Technology (BACT), and compliance shall be demonstrated by measurement, as specified in permit parts 7 and 11, of the emissions rates (in pounds per hour) as stated below.

Facility	Control	PM10 gr loading (gr/cu ft)	PM10 (lbs/hr)
Truck/rail receiving pit, truck/rail unloading belt conveyor, drag conveyor, elevators RJL-1, and RRL-1, and garner scale	Receiving area baghouse (DF-1)	0.001	0.129
Truck receiving pit #1, truck unloading drag conveyors, elevators TRL-1, and BRL-1	Receiving area baghouse (DF-2)	0.001	0.06
Truck receiving pit #2, truck unloading drag conveyors, elevators TRL-1, and BSL-1	Receiving area baghouse (DF-3)	0.001	0.06
Belt conveyor (BC-2), garner scale, and elevator BRL-1	Barge receiving scale system baghouse (DF4)	0.001	0.03
Belt conveyors (BC-2, and BC-26), Barge loading system	Barge loading baghouse (DF-5)	0.001	0.057
Barge unloading system, three belt conveyors, one elevator	Barge receiving area baghouse (DF-6)	0.001	0.092

Four drag conveyors, and eight screeners	Elevator screening baghouse (DF-7A)	0.001	0.045
Grain dryer, two enclosed bucket elevators, and two enclosed drag conveyors	None		2.90
Three belt conveyors concrete grain storage tanks	Transfer #1 baghouse (DF-7B)	0.001	0.056
Three belt conveyors concrete grain storage tanks	Transfer #2 baghouse (DF-7C)	0.001	0.056
Three belt conveyors concrete grain storage tanks	Transfer #3 baghouse (DF-7D)	0.001	0.056
Steel grain storage tanks	Steel storage tanks baghouses (DF-8, 9, 10, and 11)	0.001	0.013/ baghouse
Four belt conveyors, and two elevators (TRL-1, and BSL-1)	Grain reclaim system #1 baghouses (DF-12)	0.001	0.073
Three belt conveyors, and one elevator (PL-1)	Grain reclaim system #2 baghouses (DF-13)	0.001	0.047
Two belt conveyors, one garner scale, and one rail load out system	Rail & barge meal/grain /hull loadout baghouse (DF-18A)	0.001	0.249
Two drag conveyors, two surge bins, and one truck load out system	Truck meal/grain /hull loadout baghouse (DF-18B)	0.001	0.244
Meal car vacuum	Meal car vacuum filter (FL-20603)	0.001	0.015
Soybean flake vacuum	Soybean flake vacuum filter (FL-20803)	0.001	0.013
Hot dehulling system (Consists of a, b, c, d, and e)			
(a) Whole soybean garner scale, three heaters, two feed drag conveyors (CV-2102, and 20104);	Cyclone (CY-20101)	0.0059 (128,718 scfm) from stack (BL-20)	6.51

(b) Five dehulling aspirators	Hull refining Cyclone (CY-20701)		
(c) Six CCD dryers	CCD Cyclone (CY-20301)		
(d) Six dehulling conditioners	dehulling Cyclone (CY-20306)		
(e) Three jet dryers	Jet dryers cyclones (CY 20201 A & B, 20202 A & B, 20203 A & B)		
Bean screening surge bin	Bean screening surge bin baghouse (FL-20802)	0.001	0.013
Soybean pod grinding	Pod grinding filter (FL-20305)	0.001	0.013
Twenty Flaking rolls, three drag conveyors, and one hammer mill	Flaker filter (FL-20401)	0.001	0.258
Extractor seal conveying	None		0.029
DTDC Meal dryers	DTDC meal dryers (Cyclones CY-30301, 30302, 30303, 30304, and 30305)		3.56
DTDC meal cooler	DTDC meal cooler (Cyclone CY-30306)		1.16
One weigh conveyor, one paddle mixer, five drag conveyors, four meal screens, one screw conveyor, and four grinders	Meal sizing and screening baghouse (FL-20501)	0.001	0.26
Two meal storage bins, two loadout bins, three belt conveyors, and two elevators	Meal/hull load out systems filter (FL-20601)	0.001	0.052

Three meal storage bins, three loadout bins, four belt conveyors, and two elevators	Meal/hull load out systems filter (FL-20602)	0.001	0.052
Kaolin bin tank	Kaolin bin tank filter (FL-20605)	0.001	0.015
Hull grinder surge bin, and two drag conveyors	Hull grinding system filter (FL-20801)	0.001	0.066
Three hull grinders, one hull receiver, one hull and one pellet bin, four drag conveyors, and two elevators	Hull grinding system filter (FL-20903)	0.001	0.139
Hull pellet cooler	Hull pellet cooling cyclone (CY-20901)	0.005	0.25
Lecithin grinding mill, three drag conveyors, two load out bins with packaging equipment	Lecithin Processing filter (CY-41501)	0.001	0.031
DE Silo (TK-41702)	DE Silo filter	0.001	0.016
Bleaching clay silo (TK-51104)	Bleaching clay silo filter	0.001	0.016
Citric acid bag unloading			0.002
Acidulation tank	Acidulation tank scrubber (SC-50901)		0.008
Sulfuric acid tank			0.848
DE bulk bag (ME-50304) unloading			0.002
DE bulk bag (ME-50201) unloading			0.0002
DE bulk bag (ME-50301) unloading			0.001
Silica bag (ME-50101) unloading			0.0005

Carbon bag (ME-50202) unloading		0.0001
Nickel catalyst (ME-50303A & B) unloading		0.001
Main plant boilers		1.21
Refinery boilers	0.274	
Reformer boiler	0.274	
Diesel fire pump engine		0.185

This will also satisfy the requirements of the rule 326 IAC 6-3 (Process operations-particulate emission limitations).

Requirements for Grain Elevators

13. That pursuant to 326 IAC 12 and 40 CFR 60, Subpart DD, on and after the date on which the performance test required to be conducted by 40 CFR Part 60.80 is completed, no gases from the following operations:

(a) the receiving area baghouse (DF-1), controlling truck/rail receiving pit, truck/rail unloading belt conveyor, drag conveyor, elevators RJL-1, and RRL-1, and garner scale;

(b) the receiving area baghouse (DF-2), controlling the truck receiving pit #1, truck unloading drag conveyors, elevators TRL-1, and BRL-1;

(c) the receiving area baghouse (DF-2), controlling the truck receiving pit #2, drag conveyors, elevators TRL-1, and BSL-1;

(d) the barge receiving system baghouse (DF4), controlling the belt conveyor (BC-2), garner scale, and elevator BRL-1;

(e) the barge loading baghouse (DF-5), controlling Belt conveyors (BC-2, and BC-26), and barge loading system;

(f) the barge receiving area baghouse (DF-6), controlling the barge unloading system, three belt conveyors, and one elevator;

(g) the elevator screening baghouse (DF-7A), controlling the four drag conveyors, and eight screeners;

(h) the transfer #1 baghouse (DF-7B), controlling the three belt conveyors, and concrete grain storage tanks

(i) the transfer #2 baghouse (DF-7C), controlling the three belt conveyors, and the concrete grain storage tanks;

(j) the transfer #3 baghouse (DF-7D), controlling the three belt conveyors, and the concrete grain storage tanks;

(k) the steel tanks storage baghouses (DF-8, 9, 10, and 11), controlling the four steel grain storage tanks;

(l) the grain reclaim system #1 baghouse (DF-12), controlling four belt conveyors, and two elevators (TRL-1, and BSL-1);

(m) the grain reclaim system #2 baghouse (DF-13), controlling three belt conveyors, and one elevator (PL-1);

(n) the rail & barge meal/grain/hull loadout baghouse (DF-18A) when loading grain only, controlling two belt conveyors, one garner scale, and one rail load out system;

(o) the truck meal/grain/hull loadout baghouse (DF-18B) when loading grain only, controlling two drag conveyors, two surge bins, one truck load out system; and

(p) the bean screening surge bin baghouse (FL-20802), controlling the bean screening surge bins

shall be discharged into the atmosphere, which

(1) contain particulate matter in excess of 0.01 grains per dscf, and

(2) exhibit greater than 0 percent opacity.

Requirements for Particulate Matter Fugitive Emissions for Grain Elevators

14. That pursuant to 40 CFR 60 Subpart DD 60.302(c), and 326 IAC 12, no fugitive emissions from the truck unloading stations, truck/rail car unloading station, barge grain loading station, truck grain loading station, and grain handling operations shall exhibit greater than 5 percent, 5 percent, 20 percent, 10 percent, and 0 percent opacity, respectively.

Requirements for SO_2 Emissions for Boilers

15. That pursuant to 40 CFR 60 Subpart Db, 326 IAC 12, and 326 IAC 7-1.1-2(a)(3), on and after the date on which the initial performance test is completed or required to be completed under 40 CFR 60.8, whichever date comes first, the owner or operator of the main plant boilers shall not cause to be discharged into the atmosphere from the main plant boilers any gases that contain SO_2 in excess of 0.50 lb/million Btu heat input; or, as an alternative, the owner or operator of the boilers shall not combust distillate oil that contains greater than 0.5 weight percent sulfur.

Distillate Oil Certification for SO_2 Emissions

16. That pursuant to 40 CFR 60.49b(r), and 326 IAC 12, compliance with the emission limits or fuel oil sulfur limits in operation condition 15 may be determined based on a certification from the fuel supplier. Fuel supplier certification shall include the following information for distillate oil:

(i) The name of the oil supplier; and

(ii) a statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil in 40 CFR 60.41c.

SO_2 Emission Duration

17. That pursuant to 40 CFR 60.42b, and 326 IAC 12, the SO_2 emission limits and fuel oil sulfur limits apply at all times, including period of startup, shutdown, and malfunction.

Distillate Oil Reporting

18. That pursuant to 326 IAC 7-2-(a)(3), the applicant shall submit reports of calendar month for annual average sulfur content or sulfur dioxide rate in pounds per million Btu, heat content, fuel consumption upon request to the Office of Air Management.

Fuel Record Keeping

19. That pursuant to 40 CFR 60.48c(g), and 326 IAC 12, the owner or operator of the two refinery, and one reformer boiler shall record and maintain records of the amounts of natural gas combusted in these boilers for each quarter.

Main Plant Boilers Opacity Limitation

20. That

(a) pursuant to 40 CFR 60.43b (f), and 326 IAC 12, on and after the date on which the initial performance test is completed or required to be completed under 40 CFR 60.8, whichever date comes first, the owner or operator of the main plant boilers shall not cause to be discharged into the atmosphere from the main plant boilers, any gases that exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity. The opacity standards apply at all times, except during period of startup, shutdown, or malfunction.

(b) pursuant to 326 IAC 12, and 40 CFR 60.48b (a), Subpart Db,

(i) the owner or operator shall install, calibrate, maintain, and operate a continuous monitoring system for measuring the opacity of emissions discharged to the atmosphere from the two main plant boilers, and record the output of the system;

(ii) the continuous monitoring system shall be operated and data recorded during all periods of operation of the two main plant boilers except for continuous monitoring system breakdowns and repairs. Data shall be recorded during calibration checks, and zero and span adjustments;

(iii) the procedures under 40 CFR 60.13 shall be followed for installation, evaluation, and operation of the continuous monitoring systems; and

(c) pursuant to 326 IAC 12, and 40 CFR 60.49b(f), Subpart Db, the owner or operator shall report and keep records as required in 40 CFR 60.49b.

Record Keeping for Storage Tanks

21. That pursuant to 40 CFR 60 Subpart Kb, and 326 IAC 12, the owner or operator shall keep readily accessible records showing the dimension; and an analysis showing the capacity of the hexane storage tanks, vegetable oil storage tanks (equal to or larger than 40 cubic meters (10,568 gallons) in volume), and fuel oil storage tanks (equal to or larger than 40 cubic meters (10,568 gallons) in volume) for the life of the source.

VOC BACT Requirements

22. That pursuant to 40 CFR 52.21, 326 IAC 2-2, 326 IAC 8-1-6, and 326 IAC 2-1-3.4, VOC (hexane) emissions from this plant shall comply with the Best Available Control Technology (BACT) as follows:

(a) BACT for the soybean oil extractor; meal dryers; meal cooler; and whole soybean extraction, and refinery plant shall be as follows:

Facility	Control	VOC(Hexane) Emission Limit
Oil extractor	Mineral oil absorber system	0.076 lb/ton of grain processed
Meal dryers	None	0.228 lb/ton of grain processed
Meal cooler	None	0.083 lb/ton of grain processed
Total hexane loss rate for the plant for the first year		0.20 gals/ton soybean crush
Total hexane loss rate for the plant after first year		0.16 gals/ton soybean crush
Maximum annual soybean process throughput		2,489,089 tons (process)
Maximum vegetable oil refining capacity		497,818 tons (process + purchased)

The above vegetable oil capacity does not include the vegetable oil purchased for packaging only.

(b) BACT for the fugitive hexane loss shall include an enhanced inspection, maintenance, and repair program. Within 60 days of achieving full production, but in no case later than 180 days after initial startup, the permittee shall institute the following enhanced inspection, maintenance, and repair program for the solvent extraction portion of the installation.

Table 1

Equipment	Leak Standard
Pumps	500 ppm
Valves	500 ppm
Pressure relief Devices	500 ppm
Flanges, Connectors, and Seals	10,000 ppm

(i) The permittee shall determine compliance with the standards in Table 1 by using the procedures of 40 CFR Part 60, Appendix A, Method 21. The instrument shall be calibrated before each day of its use by the procedures as specified in Method 21. A leak is defined as an instrument reading of 500 ppm above background or greater, except for flanges, and connectors where a leak is defined as 10,000 ppm above background.

(ii) The permittee shall immediately tag all detected leaks with a weatherproof and readily visible identification tag with a distinct number. Once a leaking component is detected, first-attempt repairs must be done within five days and be completed within 15 days of detecting the leaking components. If the repair can not be accomplished within 15 days, then the permittee shall send a notice of inability to repair to the OAM within 20 days of detecting the leak. The notice must be received by the Data Support Section, Office of Air Management, 100 North Senate Avenue, P. O. Box 6015, Indianapolis, Indiana 46206-6015 within 20 days after the leak was detected. At a minimum the notice shall include the following:

(1) Equipment, operator, and instrument identification number;

(2) Date of leak detection; 3) Measured concentration (ppm) and background (ppm); 4) Leak identification number associated with the corresponding tag; 5) Reason of inability to repair within 5 to 15 days of detection,

(iii) The permittee shall maintain records of the following to verify compliance with the enhanced inspection, maintenance, and repair program.

(a) equipment inspected;

(b) date of inspection; and

(c) determination of whether a leak was detected.

(iv) If a leak is detected, the permittee shall record the following information to verify compliance with the enhanced inspection, maintenance, and repair program.

(a) the equipment, operator, and instrument identification number;

(b) measured concentration;

(c) leak identification number associated with the corresponding tag;

(d) date of repair;

(e) reason for non-repair if unable to repair within 5 to 15 days of detection;

(f) maintenance recheck if repaired-date, concentration, background, and

(g) any appropriate comments.

(c) The vent gases from the hexane storage tanks shall be directed to the absorber system.

(d) The gases from the refinery hot well shall be combusted in the designated boiler.

VOC Compliance Determinations

23. That the procedures to demonstrate the compliance with VOC emissions from the absorber vent, meal dryers, and meal cooler shall be as follows, based on 12 month average, rolled on a monthly basis:

(a) The average hexane limits for the absorber vent, meal dryers, and meal cooler, shall be as shown in Operation Condition no. 22.

(b) The total hexane loss from this source shall be calculated monthly from hexane loss, soybean processed, and their ratio (in gallons of hexane per ton of soybean processed).

(c) The mineral oil absorption vent VOC (hexane) emission rate shall be determined monthly by measuring the airflow rate and the concentration of the hexane in the air stream. This concentration will be determined by measuring percent LEL (Lower Explosion Level). If the air flow meter proves unreliable, airflow can be determined by calculations.

(d) The hexane emission rate from the DTDC dryer cyclones, and cooler cyclone shall be determined monthly by laboratory test if the lower meal temperature of the desolventizer is below 215^0F. If the meal temperature of the desolventizer is at or above 215^0F, then the hexane emission rate will be based on the compliance test results.

Absorber Operating Requirements

24. That the absorber shall operate at all times the oil extractor process is in operation at an average mineral oil flow rate to be determined at the time of the VOC compliance test.

(a) The permittee shall monitor and record the mineral oil flow rate at least once per day. The Preventive Maintenance Plan for the absorber shall contain troubleshooting contingency and corrective actions for when the flow rate readings are outside of the normal range for any one reading.

(b) The instruments used for determining the flow rate shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.

(c) The gauge employed to take the mineral oil flow across the scrubber shall have a scale such that the expected normal reading shall be no less than 20 percent of full scale and be accurate within ± 10% of full scale reading. The instrument shall be quality assured and maintained as specified by the vendor.

(d) In the event that a scrubber's failure has been observed, an inspection will be conducted. Based upon the findings of the inspection, any corrective actions will be devised within eight (8) hours of discovery and will include a timetable for completion.

Monitoring and Recording of Parameters for Mineral Oil Absorber

25. That pursuant to 326 IAC 2-2-3(i)(8)

(a) the mineral oil flow rate through the absorber shall be monitored and recorded at least once every calendar day when in operation. The flow rate shall be maintained at an average rate determined by the latest stack test;

(b) the mineral oil temperature to the absorber shall be kept below 70^0F or no less than 5^0F below than the ambient wet bulb temperature when the ambient wet bulb temperature is greater than 75^0F. When the process is in operation, an electronic data management system (EDMS) shall record the instantaneous temperature on a frequency of not less than every one hour. As an alternate to installing an EDMS, manual readings shall be taken every one hour;

(c) the mineral oil to the mineral-oil-stripping column shall be kept at a minimum of 180^0F for adequate stripping of the absorbed hexane from the oil. When the process is in operation, an electronic data management system (EDMS) shall record the instantaneous temperature on a frequency of not less than every one hour. As an alternate to installing an EDMS, manual readings shall be taken every one hour; and

(d) the vent from the absorber shall be monitored by a gas analyzer to determine the hexane content of the air leaving the absorber, and recorded at least once every calendar day when in operation.

Monitoring for Leak Detection And Repair (LDAR)

26. That pursuant to 326 IAC 2-2-3(i)(8) the following monitorings are required:

(a) For pumps

(i) For the first year:

(A) weekly visual check for leakage; and

(B) semi-annual organic vapor analyzer inspection (leak definition = 500 ppm above background concentrations).

(ii) After the first year:

(A) weekly visual check for leakage;

(B) annual organic vapor analyzer inspection (leak definition = 500 ppm above background concentrations);

(iii) when a unit has a leak detected during an annual organic vapor analyzer inspection, the frequency of organic vapor analyzer inspections shall become semi-annual;

(iv) when that unit has no leak detected for two (2) consecutive semi-annual vapor analyzer inspections, the frequency of the inspections shall return to annual.

(b) For valves

(i) For the first year:

(A) semi-annual organic vapor analyzer inspection (leak definition = 500 ppm above background concentrations).

(ii) After the first year:

(A) annual organic vapor analyzer inspection (leak definition = 500 ppm above background concentrations);

(B) when a unit has a leak detected during an annual organic vapor analyzer inspection, the frequency of organic vapor analyzer inspections shall become semi-annual; and

(C) when that unit has no leak detected for two (2) consecutive semi-annual vapor analyzer inspections, the frequency of the inspections shall return to annual.

(c) For pressure relief devices:

(i) No later than five (5) calendar days after a pressure release, the pressure release device shall be monitored to confirm conditions of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background concentrations. Any pressure relief device that is equipped with a closed vent system capable of capturing and transporting leakage through the pressure relief device to a control device is exempt from the above requirement.

(d) For connectors, flanges, and seals, the annual organic vapor analyzer inspections shall be made (leak definition = 10,000 ppm above background concentrations).

Grain Receiving and Soybean Processing Limits

27. That pursuant to 40 CFR 52.21, 326 IAC 2-2, 326 IAC 8-1-6, and 326 IAC 2-1-3.4 (Best Available Control Technology (BACT) for PM10, and VOC)

(a) the soybean for extraction purpose, and the grain for loadout without processing, received by the plant, shall be limited to 2,552,912 tons at 12.5% moisture and 6 % of hull or equivalent, and 1,500,000 tons per 12-month period respectively, rolled on a monthly basis. This production limitation is equivalent to PM10, and VOC emissions of 91, and 937 tons per 12-month period, rolled on a monthly basis, respectively.

(b) During the first 12 months of operation, the soybean for extraction purpose, and the grain for loadout without processing, received, shall be limited such that the total usage divided by the accumulated months of operation shall not exceed the 212,743 and 125,000 tons, respectively.

PSD Limit on Potential to Emit SO_2

28. That

(a) the amount of distillate oil with 0.3% sulfur maximum, combusted in the two main plant boilers shall be limited to the following schedule:

January 1 to September 31 ----------- 1,809,888 gallons

October 31 to December 31 ----------- 3,584 gallons;

(b) the hours of operation of the emergency generator shall be limited to 52 hours per year, and the sulfur content in the diesel fuel shall be limited to 0.3%; and

(c) The distillate oil usage shall be limited to 1,809,888 gallons from January to September rolled on a monthly basis, and 3,584 gallons from October to December of each year. These distillate oil usage limitations are equivalent to sulfur dioxide emissions of 38.6 tons per year, rolled on a monthly basis. This will limit the total sulfur dioxide emissions from the plant to 39.9 tons per year. Therefore, the Prevention of Significant Deterioration (PSD) rules, 326 IAC 2-2 and 40 CFR 52.21, will not apply.

Baghouse Operating Condition

29. That the baghouses shall be operated at all times when the associated processes/equipment are in operation.

(a) The permittee shall take readings of the total static pressure drop across the baghouses (tube sheets), at least once per week. Unless operated under conditions for which the Preventive Maintenance Plan specifies otherwise, the pressure drop across the baghouses shall be maintained within the range as suggested by the manufacturer. The Preventive Maintenance Plan for these baghouses shall contain troubleshooting contingency and corrective actions for when the pressure reading is outside of this range for any one reading.

(b) The instrument used for determining the pressure shall be subject to approval by IDEM, OAM, and shall be calibrated at least once every six (6) months.

(c) The gauge employed to take the pressure drop across the baghouses or any part of the facility shall have a scale such that the expected normal reading shall be no less than 20 percent of full scale and be accurate within ± 2% of full scale reading. The instrument shall be quality assured and maintained as specified by the vendor.

(d) An inspection shall be performed as often as the production line being controlled is on a shutdown. Defective bags shall be replaced. A record shall be kept of the results of the inspection and the number of bags replaced.

Grain Dryer Operation

30. That pursuant to 326 IAC 2-2-3, and 40 CFR Part 52.21(Best Available Control Technology) , the grain dryer combustion gases shall maintain a maximum operating temperature determined in the compliance tests (described in Operation Condition no. 7) to maintain a maximum of 0.033 lb/MMBTU NOx emissions.

Annual Emission Reporting

31. That pursuant to 326 IAC 2-6 (Emission Reporting), the owner/operator of ConAgra Soybean Processing Company must annually submit an emission statement for the source. This statement must be received by July 1 of each year and must comply with the minimum requirements specified in 326 IAC 2-6-4. A copy of this rule is enclosed. The annual statement must be submitted to:

Technical Support and Modeling, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

The annual emission statement covers the twelve (12) consecutive month time period starting January 1 and ending December 31.

Visible Emission Notations

32. That visible emission notations of all exhaust to the atmosphere from the baghouses, and cyclones shall be performed once per operational shift when atmospheric conditions allow for such readings. In the event that weather prohibits the observations an appropriate notation shall be recorded. A trained employee will record whether emissions are normal or abnormal.

(a) For processes operated continuously, “normal” means those conditions prevailing, or expected to prevail, 80% of the time the process is in operation, not counting start up or shut down time.

(b) In the case of batch or discontinuous operation, readings shall be taken during that part of the operation specified in the facility’s specific condition prescribing visible emissions.

(c) A trained employee is an employee who has worked at the plant at least one (1) month and has been trained in the appearance and characteristics of normal and abnormal visible emissions for that specific process.

(d) The Preventive Maintenance Plan for this source shall contain troubleshooting contingency and corrective actions for when an abnormal emission is observed.

Fugitive Dust Emissions

33. That

(a) pursuant to 326 IAC 6-4 (Fugitive Dust Emissions), if fugitive dust is visible crossing the boundary or property line of the source, the source is in violation of this fugitive dust rule. Observations of visible emissions crossing the property line of the source at or near ground level must be made by a qualified representative of IDEM. [326 IAC 6-4-5(c)], and

(b) pursuant to 326 IAC 6-5 (Fugitive Particulate Matter Emissions Limitations), fugitive particulate matter emissions shall be controlled according to the plan submitted on October 20, 1997. This plan consists of:

(i) all roads will be paved,
(ii) a regular program of road sweeping, and/or
(iii) road wetting, as needed.

<u>Record Keeping and Reporting Requirements</u>

34. That pursuant to 326 IAC 2-1-3(i), 326 IAC 2-2, and 40 CFR 52.21; a log of information necessary to document compliance with operation condition nos. 7, 8, 11(c), 16, 17, 18, 19, 20(c), 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, and 39 shall be maintained. These records shall be kept for at least the past 36 month period except for condition no. 20, which will be kept for the life of the source and made available upon request to the Office of Air Management (OAM).

(a) A quarterly summary of the amounts of soybean processed, and total grains received, distillate oil certification from the supplier, and distillate oil combusted in the boilers, shall be submitted to:

Compliance Data Section, **Office of Air Management**
100 North Senate Avenue, **P.O. Box 6015**
Indianapolis, Indiana 46206-6015

within 30 days after the end of the quarter being reported in the format attached.

(b) Unless otherwise specified in this permit, any notice, report, or other submissions required by this permit shall be timely if:

(i) Delivered by U.S. mail and postmarked on or before the date it is due; or

(ii) Delivered by any other method if it is received and stamped by IDEM, OAM on or before the date it is due.

(c) All instances of deviations from any requirements of this permit must be clearly identified in such reports.

(d) Any corrective actions taken as a result of an exceedance of a limit, an excursion from the parametric values, or a malfunction that may have caused excess emissions must be clearly identified in such reports.

(e) The first report shall cover the period commencing the postmarked submission date of the Affidavit of Construction.

Air Quality Monitoring

35. That pursuant to 326 IAC 2-2-4(c)(6), (7), and (8), and 40 CFR 52.21

(a) The Permittee shall establish an air quality monitoring program to measure ambient concentrations of particulate matter less than 10 microns, and hexane.

The program shall include two sites for measuring air pollutants near the locations of maximum predicted impact.

The Permittee shall take 24-hour samples every sixth day for PM10, and Hexane.

Ambient monitoring for Hexane shall commence at least six months prior to commencement of plant operation. PM10 monitoring shall commence prior to commencement of plant operation.

(b) The Permittee shall submit a specific ambient monitoring protocol to, and receive approval from, the department prior to receiving approval to operate the plant.

(c) The monitoring must be performed in accordance with federal monitoring procedures, and quality assurance programs as set forth in the following references: May 1987 U.S. EPA, “Ambient Air Monitoring Guidelines for Prevention of Significant Deterioration” (EPA 45014-87-007) and the July 1987 “Indiana Office of Air Management Quality Assurance Manual.” The quality assurance plan and protocol shall be submitted to:

Ambient Monitoring Section, Office of Air Management
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

Within ninety (90) calendar days in advance of the start of the monitoring. The plan must be approved prior to commencement of the monitoring.

(d) The Permittee shall comply with the requirements of 40 C.F.R. 58, Appendix B during operation of monitoring stations.

(e) A quarterly summary of monitoring data shall be submitted to:

Compliance Data Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, IN 46206-6015

within 90 calendar days after the end of the quarter being reported.

(f) The Permittee may petition the commissioner to amend the requirement for monitoring if the permittee establishes that the ambient pollutant levels will continue to comply with the NAAQS and that there will otherwise be minimal impact on air quality.

Emergency Reduction Plans

36. Pursuant to 326 IAC 1-5-2 (Emergency Reduction Plans; Submission):

(a) The Permittee shall prepare written emergency reduction plans (ERPs) consistent with safe operating procedures.

(b) These ERPs shall be submitted for approval to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Management
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

within 180 calendar days from the date on which this source commences operation.

(c) If the ERP are disapproved by IDEM, OAM, the Permittee shall have an additional thirty (30) days to resolve the differences and submit an approvable ERP. If after this time, the Permittee does not submit an approvable ERP, IDEM, OAM, shall supply such a plan.

(d) These ERPs shall state those actions that will be taken, when each episode level is declared, to reduce or eliminate emissions of the appropriate air pollutants.

(e) Said ERPs shall also identify the sources of air pollutants, the approximate amount of reduction of the pollutants, and a brief description of the manner in which the reduction will be achieved.

(f) Upon direct notification by IDEM, OAM, that a specific air pollution episode level is in effect, the Permittee shall immediately put into effect the actions stipulated in the approved ERP for the appropriate level. [326 IAC 1-5-3]

Reopening of the Permit

37. Pursuant to 326 IAC 2-1-3(i)(8), 326 IAC 2-1-5, and 326 IAC 2-2-10, The commissioner may require that a permit condition in this permit be modified if necessary to assist in the development of a plan to attain and maintain the eight-hour NAAQS for ozone. Notwithstanding any other provision of 326 IAC 2, a modification to this permit shall be subject to public comment and public hearing and be consistent with the full State Implementation Plan modification developed by the department pursuant to the federal Clean Air Act.

Ozone Emission Offset

38. Pursuant to 326 IAC 2-2-5, 40 CFR 52.21(k), and 326 IAC 2-1-3(i)(8), the Permittee shall obtain creditable reductions in the emissions of ozone precursors equivalent to their VOC emissions during the months of May through September. In determining the VOC emissions, the permittee may subtract out the equivalent of 104 tons per period of May through September (the amount equal to a non-major VOC source). A plan to obtain these creditable reductions on an ongoing, annual basis shall be submitted to the department at least 60 days prior to the operation of the plant and updated annually as needed. Annual updates for the upcoming year shall be submitted prior to January 1 of that year. The department will approve or disapprove the plan within 60 days of submittal. The plan may account for actual operating days and actual VOC emissions of the plant during the months of May through September period. The plan must identify the means to ensure that the emission reductions occur through an enforceable mechanism. This may include conditions in a modified state enforceable permit or rule.

Credits from another permittee must be accompanied by a statement from the permittee agreeing to the permit modification that would affect the emissions reduction. The Permittee may also identify reductions from non-permitted sources that can be made enforceable by rules under Title 326 of the Indiana Administrative Code or other permanent emission reduction if accompanied by a mechanism to affect the emission reductions.

The following provisions apply to creditable emission reductions:

(a) Emission reductions required by a State Implementation Plan modification submitted to the U.S. EPA to satisfy the planning requirements associated with the eight-hour National Ambient Air Quality Standard for ozone are not creditable as part of this plan;

(b) The Permittee may include emission reductions obtained from any source, including the Permittee, located in Posey, Vanderburgh, or Warrick Counties. The plan may include emission reductions from outside of these three counties provided that the Permittee demonstrates that such reductions will achieve an equivalent impact on ozone concentrations in the three counties and are otherwise creditable;

(c) The Permittee may include reductions in nitrogen oxides emissions, creditable on a one-to-one ton basis;

(d) The Permittee may use the equivalent ozone formation potential of different Volatile Organic Compounds (VOCs) in establishing the amount of creditable reduction of VOC emissions;

(e) If the Permittee is unable to obtain sufficient permanent emission reductions, the plan may also include the establishment of an escrow account to be used at the direction of the department to identify and obtain any required emission reductions not otherwise addressed in the plan. The escrow account shall include an amount sufficient to procure the remaining required emission reductions. Payments to the escrow account shall be due prior to plant operation if the plan does not provide for sufficient emission reductions during May through September 2000. Payments to the fund shall be due prior to May 1 of any subsequent year that the plan does not include sufficient emission reductions. Total payments to the account shall not exceed $570,000 in the aggregate.

Condition 38 may be revisited for modification or deletion if air quality in Posey, Vanderburgh, and Warrick Counties during 1997-1999 does not violate the eight-hour NAAQS for ozone.

<u>Hexane Content of Oil to be Refined</u>

39. That the average Hexane content of the crude vegetable oils to be refined, shall be limited to 100 pppmw. The Hexane concentration in those oils shall be analyzed once each calendar month.

The total amount of each type of oil refinedby weight, and the Hexane concentration in each type of oil shall be determined each calendar month. From these weights and hexane concentration of oils, an weighted average of Hexane concentration shall be determined each calendar month.

Office of Air Management

Quarterly Sulfur Content Report

ConAgra Soybean Processing Company
Marrs Township, Indiana

Facility I.D.:
Permit No. **CP 129-8541**
Plant ID No.: **ID 129-00039**

Material: Sulfur

Limit : 0.3 weight percent sulfur in distillate oil
Monthly Sulfur Content
Month/Year: __________

Days	% sulfur	Monthly Avg.
1	________	________
2	________	
3	________	
4	________	
5	________	
6	________	
7	________	
8	________	
9	________	
10	________	
11	________	
12	________	
13	________	
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29	________	
30	________	
31	________	

Indiana Department of Environmental Management
Office of Air Management
Compliance Data Section

ConAgra Soybean Processing Company
Marrs Township, Indiana, Indiana

Facility I.D.:
Permit No. CP 129-8541
Plant ID No.: 129-00039

Material: Distillate oil combusted in the main plant boilers

Limit : 1,818,166 gallons of distillate oil combusted per year, rolled on a monthly basis from January to September

Quarter/Year: ____________

Month	Distillate oil combusted this month (gallons)	Distillate oil combusted in last nine months (gallons)

Submitted by: ______________________________

Title/Position: ______________________________

Signature: ______________________________

Date: ______________________________

Office of Air Management

Quarterly Production Report

ConAgra Soybean Processing Company
Marrs Township, Indiana, Indiana

Facility I.D.:
Permit No. CP 129-8541
Plant ID No.: 129-00039

Material: Soybean grains processed

Limit : 2,552,912 tons of Soybean grains processed per year, based on a 12-month period**,** rolled on a monthly basis.

Quarter/Year: ____________

Month	Soybean grains processed this month (tons)	Soybean grains processed in last twelve months (tons)

Submitted by: ______________________________

Title/Position: ______________________________

Signature: ______________________________

Date: ______________________________

Office of Air Management

Quarterly Production Report

ConAgra Soybean Processing Company
Marrs Township, Indiana

Facility I.D.:
Permit No. CP 129-8541
Plant ID No.: 129-00039

Material: Total grains received

Limit : 4,052,912 tons of total grains received per year

Month	Total soybean/ grains received this month (tons)	Soybean/ grains received in last twelve months (tons)

Submitted by: ______________________

Title/Position: ______________________

Signature: ______________________

Date: ______________________

MALFUNCTION REPORT

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR MANAGEMENT
FAX NUMBER - 317 233-5967

This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.

THIS FACILITY MEETS THE APPLICABILITY REQUIREMENTS BECAUSE: IT HAS POTENTIAL TO EMIT 25 LBS/HR PARTICULATE ?_____, 100 LBS/HR VOC ?_____, 100 LBS/HR SULFUR DIOXIDE ?_____ OR 2000 LBS/HR OF ANY OTHER POLLUTANT ?_____ EMISSIONS FROM MALFUNCTIONING CONTROL EQUIPMENT OR PROCESS EQUIPMENT CAUSED EMISSIONS IN EXCESS OF APPLICABLE LIMITATION ________.

THIS MALFUNCTION RESULTED IN A VIOLATION OF: 326 IAC _______ OR, PERMIT CONDITION # _______ AND/OR PERMIT LIMIT OF _______________

THIS INCIDENT MEETS THE DEFINITION OF 'MALFUNCTION' AS LISTED ON REVERSE SIDE ? Y N

THIS MALFUNCTION IS OR WILL BE LONGER THAN THE ONE (1) HOUR REPORTING REQUIREMENT ? Y N

COMPANY: **ConAgra Soybean Processing Company** PHONE NO. _____________________________

LOCATION: (CITY AND County) **Marrs Township, Indiana**, POSEY
PERMIT NO. CP 129-8541 AFS PLANT ID: _129-00039________________ AFS POINT ID: _________________ INSP: _________________
CONTROL/PROCESS DEVICE WHICH MALFUNCTIONED AND REASON:
____
____

DATE/TIME MALFUNCTION STARTED: _____/_____/ 19______________________ AM / PM

ESTIMATED HOURS OF OPERATION WITH MALFUNCTION CONDITION:

DATE/TIME CONTROL EQUIPMENT BACK-IN SERVICE______/______/ 19____ _______________ AM/PM

TYPE OF POLLUTANTS EMITTED: PM-10, SO2, VOC, OTHER: _____________________________________

ESTIMATED AMOUNT OF POLLUTANT EMITTED DURING MALFUNCTION: _________________________________

MEASURES TAKEN TO MINIMIZE EMISSIONS: ____

REASONS WHY FACILITY CANNOT BE SHUTDOWN DURING REPAIRS:

CONTINUED OPERATION REQUIRED TO PROVIDE <u>ESSENTIAL</u>* SERVICES:
CONTINUED OPERATION NECESSARY TO PREVENT INJURY TO PERSONS:____
CONTINUED OPERATION NECESSARY TO PREVENT SEVERE DAMAGE TO EQUIPMENT:__________________________________
INTERIM CONTROL MEASURES: (IF APPLICABLE) ____
____
____

MALFUNCTION REPORTED BY: ______________________________________TITLE:_____________________________
(SIGNATURE IF FAXED)

MALFUNCTION RECORDED BY: _________________________DATE:__________________TIME:__________________

Please note - This form should only be used to report malfunctions applicable to Rule 326 IAC 1-6 and to qualify for the exemption under 326 IAC 1-6-4.

326 IAC 1-6-1 Applicability of rule

Sec. 1. The requirements of this rule (326 IAC 1-6) shall apply to the owner or operator of any facility which has the potential to emit twenty-five (25) pounds per hour of particulate, one hundred (100) pounds per hour of volatile organic compounds or SO2, or two thousand (2,000) pounds per hour of any other pollutant; or to the owner or operator of any facility with emission control equipment which suffers a malfunction that causes emissions in excess of the applicable limitation.

326 IAC 1-2-39 “Malfunction” definition

Sec. 39. Any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. (Air Pollution Control Board; 326 IAC 1-2-39; filed Mar 10, 1988, 1:20 p.m. : 11 IR 2373)

***Essential services** are interpreted to mean those operations, such as, the providing of electricity by power plants. Continued operation solely for the economic benefit of the owner or operator shall not be sufficient reason why a facility cannot be shutdown during a control equipment shutdown.

If this item is checked on the front, please explain rationale:

____

____

Indiana Department of Environmental Management
Office of Air Management

Technical Support Document (TSD) for New Construction and Operation

Source Background and Description

Source Name:	ConAgra Soybean Processing Company
Source Location:	West Franklin Road, Marrs Township, Indiana 47620
County:	Posey
Construction Permit No.:	CP-129-8541-00039
SIC Code:	2075
Permit Reviewer:	Dr. T. P. Sinha

The Office of Air Management (OAM) has reviewed an application from ConAgra Soybean Processing Company relating to the construction and operation of a soybean oil extraction and refining plant, having a soybean receiving capacity of a maximum of 2,850 tons per hour, and 4,052,912 tons per year and having a soybean crush plant capacity of 6,819 tons/day or 2,552,912 tons/year; a planned loadout of grains of 1,500,000 tons per year without processing, and a planned soybean oil manufacturing capacity of 497,818 tons per year at the above location. The particulate matter emissions will be controlled by several baghouses, and cyclones. The volatile organic compounds (VOC) emissions will be controlled by a mineral oil absorber, a desolventizer, and condensers.

The grains will be received by truck, rail, and barge. The grains will be loaded out by truck, rail or barge. The meal will be loaded out by truck, and rail.

The receiving capacity includes a maximum of 1,500,000 tons per year (50,000,000 bushels) of grains for loadout without processing.

Stack Summary

See Appendix B for stack summary.

Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

Information, unless otherwise stated, used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on May 2, 1997, with additional information received on June 18; August 14, 27; September 3, 4, 27; October 8, 14, 15, 17, 20; December 18, 22, 31, 1997; and January 30, February 16, 17, 19, 24, and 25, 1998.

Emissions Calculations

See Appendix A (Emissions Calculation Spreadsheets) for detailed calculations (73 pages).

Total Potential and Allowable Emissions

Indiana Permit Allowable Emissions Definition (after compliance with applicable rules, based on limited soybean receiving, and processing, and limited emissions of SO_2):

Pollutant	Allowable Emissions (tons/year)	Potential Emissions (tons/year)
Particulate Matter (PM)	201	14,065
Particulate Matter (PM10)	91	6,000
Sulfur Dioxide (SO_2)	876	537
Volatile Organic Compounds (VOC)	937	937
Carbon Monoxide (CO)	155	155
Nitrogen Oxides (NO_x)	359	83.50
Single Hazardous Air Pollutant (HAP)	927	927
Combination of HAPs	927	927

(a) Allowable PM emissions are determined from the applicability of rule 40 CFR 52.21. See Appendix A for detailed calculations.

(b) Allowable SO_2 emissions are determined from the applicability of rule 40 CFR 60, Subpart Db, and 326 IAC 7. See Appendix A for detailed calculations.

(c) Allowable NOx emissions are determined from the applicability of 40 CFR 60, Subpart Db. See Appendix A for detailed calculations.

(d) The potential emissions of NOx, and SO_2 before control are taken as the allowable emissions, because potential emissions are less than the allowable emissions by rules. Therefore, the potential emissions of NOx, and SO_2 before control are used for the permitting determination.

(e) The potential emissions of VOC, and CO before control are taken as the allowable emissions, because no 326 rule is applicable. Therefore, the potential emissions before control are used for the permitting determination.

(f) Allowable emissions (as defined in the Indiana Rule) of PM, PM10, VOC, NOx, CO, and SO_2 are greater than 25 tons per year. Therefore, pursuant to 326 IAC 2-1, Sections 1 and 3, a construction permit is required.

(g) Allowable emissions (as defined in the Indiana Rule) of a single hazardous air pollutant (HAP) are greater than 10 tons per year and the allowable emissions of any combination of the HAPs are greater than 25 tons per year. Therefore, pursuant to 326 IAC 2-1, a construction permit is required.

County Attainment Status

(a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Posey County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(b) Posey County has been classified as attainment or unclassifiable for PM, PM10, SO_2, NOx, and CO. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(c) This type of operation is not one of the 28 listed source categories under 326 IAC 2-2, but there are applicable New Source Performance Standards for PM, and PM10, that were in effect on August 7, 1980. Therefore, the fugitive PM, and PM10 emissions are counted toward determination of PSD applicability.

Source Status

New Source PSD Definition (based on 8,760 hours of operation per year at rated capacity including enforceable emission controls and soybean processing limit; and limited SO_2 emissions):

Pollutant	Emissions (ton/yr)
PM	201
PM10	91
SO_2	39.8
VOC	494
CO	155
NOx	83.5
H_2SO_4	0.04
Single HAP	927
Combination HAPs	927

(a) This new source is a major stationary source because at least one regulated attainment pollutant is emitted at a rate of 250 tons per year or greater. This new source is not one of the 28 listed source categories. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements apply.

(b) This new source is a major stationary source for hazardous air pollutant (HAP), because single HAP is emitted at a rate of 10 tons per year or greater. Therefore, pursuant to 326 IAC 2-1-3.4, and 40 CFR 63, Subpart B, the MACT requirements apply.

326 IAC 2-7 (Part 70 Permit Program)

This new source is subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

(a) VOC, and CO are greater than 100 tons per year, and

(b) a single hazardous air pollutant (HAP) is greater than 10 tons per year.

This new source shall apply for a Part 70 (Title V) operating permit within twelve (12) months after this source becomes subject to Title V.

Federal Rule Applicability

326 IAC 12 and 40 CFR Part 60, Subpart Db (Standards of Performance for Industrial-Commercial-Institutional Steam generating Units)

The two natural gas/distillate oil fired main plant boilers, rated at 200 million Btu/hr each, are subject to New Source Performance Standard, 326 IAC 12, and 40 CFR Part 60.44b, 60.46b, 60.48b, and 60.49b , Subpart Db. The boilers NOx emissions are 0.0365 lb/MMBtu during normal operation. The boilers shall comply with the NOx emissions limit of 0.2 lb/MMBtu at all times including the periods of startup, shutdown, or malfunction. Therefore the boilers will meet the NOx emissions limit. The weight percent sulfur in distillate oil to be burned in the boilers is less than 0.5%. Therefore, the two boilers comply with the above rules. A copy of this rule is enclosed in the construction permit.

326 IAC 12 and 40 CFR Part 60, Subpart Dc (Standards of Performance for Industrial-Commercial-Institutional Steam generating Units)

The two refinery, and reformer natural gas fired boilers, rated at 10, and 20 million Btu/hr each, are subject to New Source Performance Standard, 326 IAC 12, and 40 CFR Part 60.48c, Subpart Dc. Pursuant to this rule, the owner/operator shall record and maintain records of the amounts of natural gas combusted during each day.

326 IAC 12 and 40 CFR Part 60, Subpart Kb (Standards of Performance for Volatile Organic Liquid Storage Vessels)

The hexane storage tank nos. 1, 2; boiler fuel oil storage tank; and soy oil storage tank are subject to this rule.

The hexane storage tanks are equipped with closed vent systems to collect all VOC vapors emitted from the tanks. Therefore, it complies with rule 40 CFR 60.114b.

The boiler fuel oil storage tank is of capacity of 23 cubic meter. Therefore, the boiler fuel oil storage tank is exempt from all parts of the above rules, except 40 CFR 60.116(b).

The soy oil storage tank is of capacity of 1,844 cubic meter, and the vapor pressure of soy oil is less than 3.5 kPa. Therefore, the soy oil tank is exempt from all parts of the above rules, except 40 CFR 60.116(b).

According to this rule, the owner or operator of the hexane storage tanks, boiler fuel oil storage tank and soy oil storage tank shall keep readily accessible records of the tanks showing the dimension of the storage tanks and an analysis showing the capacity of the storage tanks for the life of the source.

A copy of this rule is enclosed with the construction permit.

326 IAC 12 and 40 CFR Part 60, Subpart DD (Standards of Performance for Grain Elevators)

The truck unloading station, rail car unloading station, barge unloading station, grain handling operations, truck loading station, rail car loading station, barge loading station, grain storage tanks, and bins are subject to New Source Performance Standards, 326 IAC 12 and 40 CFR Subpart DD 60.302(b). The gases discharged into the atmosphere from these facilities do not contain particulate matter in excess of 0.01 gr/dscf. Hence it meets the rules 326 IAC 12 and 40 CFR 60.302. The gases discharged from these operations shall not exhibit greater than 0 percent opacity.

Pursuant to this rule, the fugitive emissions from the truck unloading station, rail car unloading station, and railcar loading station; and grain handling operations shall not exhibit greater than 5; and 0 percent opacity respectively.

Pursuant to this rule, the fugitive emissions from the truck loading station, and barge loading station, shall not exhibit greater than 10; and 20 percent opacity respectively.

The column grain dryer has 0.083 inch diameter screen openings in column plate, which is less than 0.094 inch. Therefore the column grain dryer is not subject to New Source Performance Standards, 326 IAC 12 and 40 CFR Subpart DD 60.302(a).

326 IAC 14 and 40 CFR 61, and 63 (Emission Standard For Hazardous Air Pollutants)

The facilities under this construction are not subject to Emission Standard For Hazardous Air Pollutants, 326 IAC 14; and 40 CFR 61, and 63 as no hazardous air pollutants covered under these rules are emitted from these facilities.

326 IAC 2-2-3, and 40 CFR 52.21 (Best Available Control Technology (BACT))

Best Available Control Technology (BACT) is an emission limit based on the maximum degree of pollution reduction, which the OAM determines is achievable on a case-by-case basis taking into consideration energy, environmental, economic, and other cost factors. Any major stationary source that is affected by PSD regulations must conduct an analysis to ensure that BACT is specified for each pollutant which exceeds the “major source thresholds” and other pollutants, which exceeds the “significant levels”.

ConAgra Soybean Processing Company shall apply best available control technologies for NOx, PM10, VOC, and CO, because this source has the potential to emit VOC above the major source threshold level; and PM10, NOx, and CO above the significant levels. Detailed statements of the control functions are covered in Appendix B of the construction permit application. BACT is determined on a case by case basis by reviewing controls on similar processes, BACT used by the OAM, and other states, and new technologies available.

BACT Analysis

BACT analysis for NOx, CO, PM10, and VOC has been conducted in accordance with USEPA “Top Down BACT Guidance”. The RACT/BACT/LAER Clearinghouse and related state permits; and related federal permits issued by other state agencies were reviewed for control technology information.

NOx Control

Boilers

Four methods were evaluated for controlling the NOx emissions from the boilers. These were low -NOx burners, low -NOx burners with flue gas recirculation, ammonia injection, selective catalyst reduction for the boilers, and dryers; and the water quench system for dryers. The current steam boilers are not suitable for either ammonia injection or SCR catalyst. Furthermore, each of these control methods uses ammonia to react with the NOx after it is formed, to provide for NOx reductions. The ammonia introduced in the boilers would contaminate the soybean products produced by the proposed ConAgra Soybean Processing Company's plant. Therefore the followings are established as BACT for the boilers and the dryers.

(a) the two refinery(10 MMBtu/hr each), and two reformer (20 MMBtu/hr each) natural gas fired boilers shall not exceed the allowable NOx emissions of 0.0365 pounds/MMBtu heat input;

(b) the two main boilers (200MMBtu/hr each) shall not exceed the allowable NOx emissions of 0.0365, and 0.087 pounds/MMBtu heat input when burning natural gas, and very low sulfur distillate oil respectively;

(c) the boilers shall be equipped with the low NOx burners, and the flue gas recirculation systems,

Installation and operation of the low NOx burners and the flue gas recirculation systems for the boilers, are necessary to comply with the BACT emissions limits.

Grain dryer

(a) The 45 MMBtu/hr natural gas fired grain dryer shall not exceed the allowable NOx emissions of 0.033 pounds/MMBtu heat input;

(b) the grain dryer shall be equipped with the low NOx burner.

Installation and operation of the low NOx burner for the grain dryer is necessary to comply with the BACT emissions limit.

CO Control

Boilers, and dryer

CO will be emitted from the ConAgra Soybean Processing Company's plant combustion sources (i.e. steam boilers and grain dryer). The catalytic oxidation catalyst, and combustion control were the two controls considered. Catalytic oxidation operates in a narrow temperature "window". Optimum operating temperatures for these systems generally fall into the range of 700-1,100^{0}F. Below 700^{0}F CO conversion efficiency falls off, while above 1,200^{0}F catalyst sintering may occur, thus causing permanent damage to the catalyst. Also, CO emissions from the natural gas firing required to raise the exhaust gas temperature to the 700-1,100^{0}F range required by the catalytic unit, would only replace those nominally controlled by the catalyst with little or no change in overall CO discharges. Therefore, the oxidation catalyst is not considered technically feasible for these emissions.

Emissions of CO will be controlled through the use of tight control on the combustion variables; especially the supply of fuel and air and the air/fuel mixing.

The combustion control is the top control technology evaluated and considered BACT for CO control for both dryer and boilers. The emission limit of CO is established as 0.074 pounds per million Btu, corrected to 3% dry excess air in the exhaust gas of the boilers, when fired by natural gas. The emission limit of CO is established as 0.12 pounds per million Btu, corrected to 3% dry excess air in the exhaust gas of the dryer.

VOC Control

Oil Extractor, Meal Dryers, and Meal Cooler

ConAgra Soybean Processing Company, submitted an analysis of BACT for VOC emissions from the soybean extractor, meal dryers and meal cooler. The analysis evaluated catalytic incineration, recuperative thermal incineration, regenerative thermal incineration, condensation, carbon adsorption, absorption, and carbon adsorption oxidation. Catalytic incineration, recuperative thermal incineration, regenerative thermal incineration, and carbon adsorption oxidation are not safe at the oil extraction plant due to explosion hazard. Carbon adsorption system also overheats during regeneration causing explosion hazard. Due to safety reasons these systems were excluded. Condensation system is recommended for emission streams containing between 5,000 and 10,000 ppm. The emission stream from this plant will always be less than 5,000 ppm recommended for starting concentration for condensation. Absorption system to control hexane (VOC) from the oil extractor is the only viable control technology presently. The applicant is installing a mineral oil absorber with expected efficiency of 99.2 percent for the oil extractor. The meal dryers and cooler exhaust air streams are a relatively high airflow (22,000 ft^3/min) and have a relatively low VOC concentrations (0.016 lb hexane/100 lb air). Mineral-oil absorption is applied typically to low airflow and high VOC input concentrations. For meal dryers and cooler, mineral oil absorption is not very efficient for VOC recovery. However, absorption control technology was considered for meal dryers and cooler. The cost effectiveness of absorption systems for meal dryers and cooler was excessively higher i. e. in millions of dollars per ton of VOC removed . Hence this add on control for meal dryers and cooler was rejected as cost prohibitive.

The Office of Air Management has determined from the analysis that BACT for this plant are as follows:

(a) BACT for the soybean oil extractor; meal dryers; meal cooler; and whole soybean extraction, and refinery plant shall be as follows:

Facility	Control	VOC(Hexane) Emission Limit
Oil extractor	Mineral oil absorber system	0.076 lb/ton of grain processed
Meal dryers	None	0.228 lb/ton of grain processed
Meal cooler	None	0.083 lb/ton of grain processed
Whole soybean extraction, and refinery plant for the first year		0.20 gals/ton soybean crush
Whole soybean extraction, and refinery plant		0.16 gals/ton soybean crush
Maximum annual soybean process throughput		2,489,089 tons (process) 2,552,912 tons (soybeans received)

(b) BACT for the fugitive hexane loss shall include an enhanced inspection, maintenance, and repair program. Within 60 days of achieving full production, but in no case later than 180 days after initial startup, the permittee shall institute the following enhanced inspection, maintenance, and repair program for the solvent extraction portion of the installation.

Table 1

Equipment	Leak Standard
Pumps	500 ppm
Valves	500 ppm
Pressure relief Devices	500 ppm
Flanges, Connectors, and Seals	10,000 ppm

(i) The permittee shall determine compliance with the standards in Table 1 by using the procedures of 40 CFR Part 60, Appendix A, Method 21. The instrument shall be calibrated before each day of its use by the procedures as specified in Method 21. A leak is defined as an instrument reading of 500 ppm above background or greater, except for flanges, and connectors where a leak is defined as 10,000 ppm above background.

(ii) The permittee shall immediately tag all detected leaks with a weatherproof and readily visible identification tag with a distinct number. Once a leaking component is detected, first-attempt repairs must be done within five days and be completed within 15 days of detecting the leaking components. If the repair can not be accomplished within 15 days, then the permittee shall send a notice of inability to repair to the OAM within 20 days of detecting the leak. The notice must be received by the Technical Support and Modeling, Office of Air Management, 100 North Senate Avenue, P. O. Box 6015, Indianapolis, Indiana 46206-6015 within 20 days after the leak was detected. At a minimum the notice shall include the following:

(1) Equipment, operator, and instrument identification number;

(2) Date of leak detection; 3) Measured concentration (ppm) and background (ppm); 4) Leak identification number associated with the corresponding tag; 5) Reason of inability to repair within 5 to 15 days of detection,

(iii) The permittee shall maintain records of the following to verify compliance with the enhanced inspection, maintenance, and repair program.

(a) equipment inspected;

(b) date of inspection; and

(c) determination of whether a leak was detected.

(iv) If a leak is detected, the permittee shall record the following information to verify compliance with the enhanced inspection, maintenance, and repair program.

(a) the equipment, operator, and instrument identification number;

(b) measured concentration;

(c) leak identification number associated with the corresponding tag;

(d) date of repair;

(e) reason for non-repair if unable to repair within 5 to 15 days of detection;

(f) maintenance recheck if repaired-date, concentration, background, and

(g) any appropriate comments.

(c) The vent gases from the hexane storage tanks shall be directed to the absorber system.

(d) The gases from the refinery hot well shall be combusted in the designated boiler.

Particulate matter 10 microns (PM10) control

Soybean receiving, soybean/product handling, soybean/product loading, and storage

Soybean receiving system, elevator leg aspiration, soybean receiving transfer, soybean storage, soybean screener, soybean flaking, soybean meal grinding and screening, soybean meal storage and handling, kaolin storage, meal/grain/hull loadout, hull grinding, granulated lecithin process, diatomaceous earth storage, perlite/diatomaceous earth storage, silica bag unloading, carbon bag unloading, bleaching clay storage

The following four controls were considered for controlling PM10 emissions from these facilities.

(1) Baghouses are commonly used to control dry, non-sticky particulate emissions. It is estimated by the OAM that this control should achieve 99.0 to 99.5 % removal efficiency, and the BACT emission limit with the baghouse control is based on a PM10 outlet concentration of 0.005 gr/scf.

(2) Electrostatic precipitators have been successfully applied to the removal of ash dust in the power industry. However, the use of a high voltage current to remove highly explosive grain dust particulate from a gas stream could be catastrophic. Additionally, the resistivity of the emissions should not likely result in an efficient removal. This control is not well demonstrated in the grain industry, and is considered technically infeasible for the control of this facility.

(3) The use of a scrubber for particulate removal in similar processing units is well established, and is considered technically feasible. This scrubber is estimated to provide a 99% control of PM10.

(4) The cyclones are not as efficient as the baghouse or the scrubber for the control of dry particulate matter.

Therefore, the baghouse is determined to be the top control as it has the highest efficiency. Baghouses have been selected as the BACT for the above equipment, and processes.

Jet dryers, Heaters, Cracking and Dehulling, Meal dryers and Cooler

For these equipment at the proposed soybean extraction plant, the application of baghouses to control particulate emissions from these facilities may result in bag failures and excursions of high particulate emissions. Due to the removal of moisture in the drying process, the exhaust gas from the equipment is at or close to saturation conditions, and condensation inside the baghouse could blind the filter media and cause cementation. Due to the moisture content of the dryer off gas, installing a baghouse as a particulate emission control device for the dryers and heaters is technically unfeasible.

The following table provides effective costs for implementing fabric filters as secondary particulate matter control for high moisture gas streams in the hot cracking and dehulling; and meal drying, and cooling systems; a fabric filter as the primary particulate matter control for the high moisture gas stream in the hull pellet cooling system. For fabric filter operations with high moisture gas streams, heat addition is required to raise the gas stream temperature 100^{O}F above the dew point temperature. For fabric filter operations in potentially solvent rich areas, explosion suppression is required to ensure the required safety. The costs for heat addition and explosion suppression systems are included in the cost of each fabric filter.

Facility	Control Method	Effective Cost
Jet dryer	Fabric filter	$1,532,420/ton
CCD	Fabric filter	$35,455/ton
CCC	Fabric filter	$35,455/ton
Soybean heater/secondary de-hulling aspirator	Fabric filter	$22,449/ton
Meal dryers/cooler	Fabric filter	$7,890/ton
Hull pellet coolers	Fabric filter	$9,766/ton

Therefore, the cyclones are proposed for particulate control for the above facilities which have high moisture and oily gas streams.

<u>Natural gas, and distillate oil fired combustion sources</u>

Particulate matter emissions from the combustion sources are low since the burning of natural gas, and distillate oil is an inherently clean process. Therefore, the combustion control is the BACT for these facilities.

<u>Fugitive dust emissions facilities</u>

Fugitive dust will be generated as soybean delivery trucks and other facility vehicles traverse plant roadways. The roads will be paved and a regular program of road sweeping and/or road wetting as needed will be used to control fugitive dust emissions from the plant roadways. The road sweeping, and road wetting are the BACT for the fugitive emissions.

State Rule Applicability

326 IAC 2-6 (Emission Reporting)

This source is subject to 326 IAC 2-6 (Emission Reporting), because the source has the potential to emit more than 100 tons/year of CO, and VOC. Pursuant to this rule, the owner/operator of this source must annually submit an emission statement of the facility. The annual statement must be received by July 1 of each year and must contain the minimum requirements as specified in 326 IAC 2-6-4.

326 IAC 6-3-2 (Process Operations: Particulate Emission Limitations)

The BACT requirement for particulate matter emissions are more stringent than this rule. Therefore, the requirements of this rule are satisfied by BACT requirements.

326 IAC 6-2 (Particulate Emissions Limitations for Sources of Indirect Heating)

The particulate matter emissions from the two main boilers are 0.014 pounds/MMBtu, when combusting low sulfur distillate oil or natural gas, which are less than the allowable emission rate of 0.22 pounds/MMBtu, hence it meets the rule 326 IAC 6-2-4.

The particulate matter emissions from the two refinery boilers, and the two reformer boilers are 0.014 pounds/MMBtu, when combusting natural gas, which are less than the allowable emission rate of 0.22 pounds/MMBtu, hence it meets the rule 326 IAC 6-2-4.

326 IAC 7-1 (Sulfur Dioxide Emission Limitations)

The sulfur dioxide emissions from the two main boilers are less than 0.5 pounds per million btu. Therefore, these boilers are in compliance with the rule 326 IAC 7-1.

326 IAC 8-1-6 (General provisions relating to VOC rules: general reduction requirements for new facilities)

The facilities having uncontrolled VOC emissions of 25 tons per year, which are not otherwise regulated by other provisions of this article (326 IAC 8), shall reduce VOC emissions using best available control technology (BACT). The PSD BACT for this source satisfies the requirements of rule 326 IAC 8-1-6.

326 IAC 2-1-3.4 (New Source Toxics Control Rule)

The new facilities for a major source for HAPs are required to apply MACT standard. There is no presumptive MACT standard for this category of source. The PSD BACT determination for VOC has been determined to be the MACT for the HAP (hexane). Therefore, it complies with the rule 326 IAC 2-1-3.4.

326 IAC 2-1-3(i)(8), 326 IAC 2-1-5, and 326 IAC 2-2-10 (Reopening of Permit):

Pursuant to 326 IAC 2-1-3(i)(8), 326 IAC 2-1-5, and 326 IAC 2-2-10, the Commissioner may require that a permit condition in this permit be modified if necessary to assist in the development of a plan to attain and maintain the eight-hour NAAQS for ozone. Notwithstanding any other provision of 326 IAC 2, a modification to this permit shall be subject to public comment and public hearing and be consistent with the full State Implementation Plan modification developed by the department pursuant to the federal Clean Air Act.

326 IAC 2-2-4 (a), and 40 CFR 52.21 (Air Quality Analysis, Requirements)

326 IAC 2-2-4(a) - PSD application shall contain an analysis of the ambient air quality in the area that the PSD source would affect.

ConAgra Soybean Processing Company has submitted air quality analysis of the area where the proposed processing plant is to be located (Marrs Township, Posey County, Indiana). This evaluation has been evaluated by the OAM. See Appendix C (Air Quality Analysis) for details.

326 IAC 2-2-4(c)(6), (7), and (8), and 40 CFR 52.21 (Air Quality Monitoring)

That pursuant to 326 IAC 2-2-4(c)(6), (7), and (8), and 40 CFR 52.21

(a) The Permittee shall establish an air quality monitoring program to measure ambient concentrations of particulate matter, and hexane.

The program shall include two sites for measuring air pollutants near the locations of maximum predicted impact.

(b) The permittee shall submit a specific ambient monitoring protocol to, and receive approval from, the department prior to receiving approval to operate the plant.

(c) The monitoring must be performed in accordance with federal monitoring procedures, and quality assurance programs as set forth in the following references: May 1987 U.S. EPA, "Ambient Air Monitoring Guidelines for Prevention of Significant Deterioration" (EPA 45014-87-007) and the July 1987 "Indiana Office of Air Management Quality Assurance Manual." The quality assurance plan and protocol shall be submitted to:

Ambient Monitoring Section, Office of Air Management
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

Within ninety (90) calendar days in advance of the start of the monitoring. The plan must be approved prior to commencement of the monitoring.

(d) The Permittee shall comply with the requirements of 40 C.F.R. 58, Appendix B during operation of monitoring stations.

(e) A quarterly summary of monitoring data shall be submitted to:

Compliance Data Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, IN 46206-6015

within 90 calendar days after the end of the quarter being reported.

(f) The permittee may petition the commissioner to amend the requirement for monitoring if the permittee establishes that the ambient pollutant levels will continue to comply with the NAAQS and that there will otherwise be minimal impact on air quality.

326 IAC 2-2-5, and 40 CFR 52.21(k), and 326 IAC 2-1-3(i)(8) (Source Impacts, Requirements)

The U.S. EPA will not formally designate the Evansville area's air quality with respect to the new eight-hour NAAQS until 2000. However, recent air quality data indicates that ozone concentrations exceed the new standard. The IDEM has begun efforts to develop a modification to the State Implementation Plan (SIP) to ensure that compliance with the ozone standard is attained as expeditiously as possible. This plan will focus on existing sources of ozone precursors and will accommodate general growth. Large increases from new major sources will likely be addressed by provisions under Part D of the Clean Air Act that require, among other requirements, that new major sources obtain emission reductions beyond those called for by the SIP to "offset" the emissions from the new plant.

The best available modeling tools predict that this source will have a minimal short-term impact on ozone concentrations. In order to further ensure that the impact of ConAgra's emissions are mitigated, the proposed permit requires that ConAgra establish the mechanism to reduce emissions to offset the amount of VOC that the new plant will emit in excess of major source levels during the months of May through September. This is when ozone levels are highest and there's a risk of violating the NAAQS. ConAgra can obtain these reductions by lowering emissions at their plant, obtaining permanent emissions reductions from other sources, or establishing a fund to assist the IDEM in obtaining emission reduction beyond those otherwise contained in the expected modification to the SIP.

The amount of emissions offset for ConAgra was determined as follows:

Total amount of VOC emissions per year from the proposed source	= 937 tons/yr
Minor Source Status emissions	= 250 tons/yr
No. of ozone months (May to September)	= 5
The amount of VOC emissions during these months	= (937 tons/yr)*(5/12) = 390 tons/yr
To stay under minor source status during ozone months	= (250*5/12) tons = 104 tons
Amount of offsets (Reductions in amount of ozone precursors needed)	= (Total VOC emissions- Minor source status emissions) = (390 -104) tons/yr = 286 tons during May through September

326 IAC 2-2-5, and 40 CFR 52.21 (Air Quality Impacts, Requirements)

326 IAC 2-2-5(c)(1) - Any estimates of ambient air concentrations shall be based upon applicable air quality models, data bases and other requirements specified by the USEPA.

The analysis and results submitted by ConAgra Soybean Processing Company were checked and verified by the OAM. See Appendix C (Air Quality Analysis) for details and conclusion.

326 IAC 2-2-6(a), and 40 CFR 52.21 (Increment Consumption, Requirements)

326 IAC 2-2-6(a) - The increase in emissions will not exceed 80% of the available maximum allowable increase over the baseline concentrations for PM10, and NOx.

See Appendix C (Air Quality Analysis) for details on the increment consumption analysis and evaluation.

326 IAC 2-2-7, and 40 CFR 52.21 (Additional Analysis, Requirements)
The results of the additional impact analysis conclude the operation of the ConAgra Soybean Processing Company soybean extraction pant will have no significant impact on economic growth, soils, vegetation or visibility in the immediate vicinity or on any Class I area.

326 IAC 2-2-8, and 40 CFR 52.21 (Source Obligation)

(1) Pursuant to 326 IAC 2-2-8(a)(1)-That pursuant to 326 IAC 2-2-8 (Revocation of Permits), the Commissioner may revoke this permit if construction is not commenced within eighteen (18) months after receipt of this approval; or if construction is discontinued for a period of eighteen (18) months or more; or if construction is not completed in reasonable time.

(2) Pursuant to 326 IAC 2-2-8(a)(2)- Approval for construction shall not relieve ConAgra Soybean Processing Company of the responsibility to comply fully with applicable provisions of the Indiana State Implementation Plan and any other requirements under local, state, or federal law.

326 IAC 2-2-10, and 40 CFR 52.21 (Source Obligation)
ConAgra Soybean Processing Company has submitted the information necessary to perform analysis or make the determination required under PSD review.

326 IAC 2-2-11, and 40 CFR 52.21 (Stack Height Provisions)
326 IAC 2-2-11(a)(1)- Applies to a source which commenced construction after December 31, 1970.

326 IAC 2-2-12, and 40 CFR 52.21 (Permit Rescission)
The construction permit shall remain in effect, unless it is rescinded, modified, revoked, or expires.

Air Toxic Emissions

Indiana presently requests applicants to provide information on emissions of the 187 hazardous air pollutants set out in the Clean Air Act Amendments of 1990. These pollutants are either carcinogenic or otherwise considered toxic and are commonly used by industries. They are listed as air toxics on the Office of Air Management (OAM) Construction Permit Application Form Y.

(a) The new source will emit levels of air toxic (Hexane) greater than those that constitute major source applicability according to Section 112 of the Clean Air Act. The concentration of the air toxic were modeled and found to be (in worst case possible) as follows:

Substance	Modeled Concentration (Fg/m^3)	OSHA PEL Limit (Fg/m^3)	% of OSHA PEL
Hexane	2,048	1,800,000	0.11

The concentrations of these air toxics were compared to the Permissible Exposure Limits (PEL) developed by the Occupational Safety and Health Administration (OSHA).

Conclusion

The construction of this soybean oil extraction and refinery plant will be subject to the conditions of the attached proposed **Construction Permit No. CP-129-8541-00039.**

Indiana Department of Environmental Management
Office of Air Management

Addendum to the
Technical Support Document for New Construction and Operation

Source Name:	ConAgra Soybean Processing Company
Source Location:	West Franklin Road, Marrs Township, Indiana 47620
County:	Posey
Construction Permit No.:	CP-129-8541-00039
SIC Code:	2075
Permit Reviewer:	Dr. T. P. Sinha

On May 13, 1998, the Office of Air Management (OAM) had a notice published in the Mt. Vernon Democrat, Mt. Vernon, Indiana; and Evansville Courier, Evansville, Indiana, stating that ConAgra Soybean Processing Company had applied for a construction permit to construct and operate a grain merchandising, and a soybean oil extraction and refining plant, having a grain receiving capacity of a maximum of 3,000 tons per hour, and 4,052,912 tons per year; and having a soybean crush plant capacity of 6,819 tons/day; a planned loadout of grains of 1,500,000 tons per year without processing, and a planned soybean oil manufacturing capacity of 497,818 tons per year at the above location with the particulate matter emissions controlled by several baghouses, and cyclones, the volatile organic compounds (VOC) emissions controlled by a mineral oil absorber, a desolventizer, and condensers, the nitrogen oxides emissions controlled by low NOx burners, and flue gas recirculation systems on the boilers; and low NOx burners on the grain dryer. The notice also stated that OAM proposed to issue a permit for this installation and provided information on how the public could review the proposed permit and other documentation. In addition, the notice stated a public hearing would be held on June 15, 1998. The notice informed that the period during which any interested person may comment on why this proposed permit should or should not be issued, will end on June 12, 1998. After several people requested to extend the comment period, the comment period was extended to June 30, 1998.

Written and oral comments were received on the proposed construction permit from the company, and from the public. The OAM has attempted to be as responsive as practically possible to all who participated in the permit process. The summary of the comments and corresponding responses is as follows:

Note: The changes are crossed out, and the additions are bolded for emphasis.

ConAgra Soybean Processing Company:

Comment 1: The facility receiving capacity, noted in several places in the document (first paragraph of the Public Notice cover sheet, page 1 of the permit, page 1 of the TSD, page 7 (Allowable PM calculation) of Appendix A) requires correction. The receiving rates are set by the capacity of the conveyors below or transferring from the receiving stations, as documented in the Equipment and Operations list, item 5, 6, 7, and 15. These rates - 1,200 tons per hour (tph) for rail receiving, and 600 tph each for the two truck and for the barge station - total 3,000 tph.

Response 1: The receiving capacity has been corrected accordingly.
The statement is changed to read as follows:

.... a grain merchandising, and a soybean oil extraction and refining plant, having a grain receiving capacity of a maximum of ~~2,850~~ **3,000** tons per hour,.........

Comment 2:

(a) Item 11: Replace “truck/rail” with “truck/barge” to correctly identify the receiving #1 bucket elevator.
(b) Item 12: Replace BRL with TRL to correctly identify one of the two bucket elevators.
(c) Item 77: Replace 20605 with 20902 to correctly identify one of the bins.
(d) Item 95: Interchange the numerals for the bucket elevator and drag conveyor to correctly identify this equipment.
(e) Item 180: Replace TS0012B with TS0012B to D, to correctly identify three of the tanks.
(f) Item 183: Replace 7,900 with 7,000 to correctly identify the tank capacity.
(g) Item 195: Delete “total” and add “each” after “gallons” to reflect the correct tank capacity.
(h) Item 232: A tank is missing from the list, add this new item 232: one (1) recovered oil tank (TK7105), nominal capacity of 600 gallons.

Response 2: The Equipment and Operations List has been changed accordingly and follows below:

(a) Item 11: two (2) soybean truck/~~rail~~ **barge** receiving #1 bucket elevators (TRL-1 & BRL-1), maximum capacities of 40,000, and 20,000 bushels per hour respectively, maximum system capacity of 40,000 bushels per hour total, controlled by a receiving area baghouse (DF-2), and exhausting at stack Pt # DF2;

(b) Item 12: two (2) soybean truck receiving #2 bucket elevator (~~BRL~~- **TRL**1 and BSL-1), maximum capacity of 20,000 bushels per hour each, controlled by a receiving area baghouse (DF-3), and exhausting at stack Pt # DF3;

(c) Item 77: five (5) meal storage bins (TK 20601, 20602, 20603, 20604, and ~~20605~~ **20902**), maximum capacity of 150,000 cuft (3,000 tons) each, controlled by a meal sizing and storage filter (FL-20501), and exhausting at stack Pt. #FL 20501;

(d) Item 95: two (2) totally enclosed conveyors (one bucket elevator (~~CV-41504~~) **(CV-41505)**, and one drag (~~CV-41505~~)**(CV-41504)**), feeding to lecithin packaging, maximum capacity of 1 ton per hour each, controlled by a lecithin grinding mill filter (CY-41501), and exhausting at stack Pt. # CY-41501;

(e) Item 180: five (5) lecithin tanks (TS0012B **to D**, TS0013, and TS0014), nominal capacity of 6,600 gallons each;

(f) Item 183: one (1) acetic anhydride storage tank (TS-0018), nominal capacity of ~~7,900~~ **7,000** gallons;

(g) Item 195: two (2) R/B oil tanks (TS-2201 A & B), nominal ~~total~~ capacity of 264,000 gallons **each**, controlled by nitrogen blanket;

(h) Item 232: **one (1) recovered oil tank (TK7105), nominal capacity of 600 gallons.**

Comment 3:

Construction Conditions

(a) Part 6(c): Delete this condition as IDEM has agreed that such a plan is not required.
(b) Part 7: Replace “to” with “on”.

(c) Part 8: Three revisions are requested concerning this condition to reflect improved grain dryer design changes since the NSPS was adopted in the early 1970's.

(1) To control energy costs, the cooling section of the dryers manufactured the last 10 years or so are used as air pre-heaters for the drying section. There is no discharge to the atmosphere from the cooling section. The cooling air is ducted to the inlet of the dryer section fans. The heat imparted to the cooling air lowers the drying section fuel requirements and the particulate matter in the air stream is incinerated in the heating section burners(s). Therefore, the size of the openings in the external or internal sheeting of the cooling section has no relationship to emissions to the atmosphere.

(2) To control maintenance costs associated with the abrasive nature of soybeans, woven wire is normally used for internal and external column sheeting, in lieu of perforated metal sheeting, when appreciable drying of soybeans is expected for the dryer. The wetted perimeter or hydraulic radius formula [R_h = LW/2(L+W), where R_h is the hydraulic radius and L and W are the screen opening dimensions] has been used by regulatory agencies (The Chattanooga/Hamilton County Air Pollution County Air Pollution Control Agency, for example) to define an equivalent diameter for non- circular sheeting openings. The soybean dryers of Central Soya routinely use woven wire for the column sheeting, both internal and external. We realize that the opacity limitation of the NSPS will apply if external sheeting with non-circular openings is utilized.

(3) For designs similar to the Zimmerman column dryers, now manufactured by FFI, settling chambers are not used. This design is normally called AP (air pollution) in lieu of a settling chamber. The permit should reflect that these designs are available and that the requirement of a settling chamber will be waived if such a dryer is to be installed.

Therefore, to enable the applicant to realize these dryer design improvements, ConAgra is requesting the following:

that “external discharge only” be added in parentheses after “column plate”.

that the following sentence be added to the condition: Where woven wire is used as external sheeting column plate, compliance with the perforation size limit shall be determined as follows: Equivalent diameter will be determined by the following formula:

D_h = LW/(L+W), where D_h is the hydraulic diameter and L and W are the screen opening dimensions.

that the following sentence be added to the condition:

Where the dryer design incorporates 0.083 inch diameter or small column plate perforations, the requirement for the settling chamber is waived.

(d) Part 12: NSPS requirements apply only to some of the soy or any other vegetable oil tanks. Accordingly, "equal to or larger than 40 cubic meters (10,568 gallons) in volume" should be added after "vegetable oil storage tanks".

(e) Part 12(d): This requirement only applies to specific boilers. Therefore, "for the boilers" should be added after "testing".

(f) Part 12(e): This requirement only applies to specific boilers. Therefore, "the boilers" should be added before "CEMS".

(g) Part 12(f) To correctly summarize the applicable requirements of 40 CFR 60.7, this part should be replaced with the following: Notification of the specific provisions of 40 CFR 60.7 (60.7 (a), (b), and (c)). These provisions shall apply as of initial start-up.

Response 3:

(a) The Construction Condition 6(c) has been deleted.

(b) The "to" has been changed to "on". The revised Condition 7 has been shown below.

That the low NOx burners and flue gas recirculation systems shall be installed ~~to~~ **on** all boilers.

(c) The Construction Condition No. 8 has been revised and is as shown below.

That the grain dryer shall be equipped with a settling chamber and column plate **(external discharge only)**, with perforations of not greater than 0.094 inches in diameter; and a low NOx burner. **Where woven wire is used as external sheeting column plate, compliance with the perforation size limit shall be determined as follows:**

Equivalent diameter will be determined by the following formula:

D_h = LW/(L+W), where D_h is the hydraulic diameter and L and W are the screen opening dimensions.

Where the dryer design incorporates 0.083 inch diameter or small column plate perforations, the requirement for the settling chamber is waived.

(d) The Construction Condition No. 12, first paragraph has been revised and is as shown below.

That pursuant to the New Source Performance Standards (NSPS), Part 60.7, Subpart A, the source owner/operator is hereby advised of the requirement to report the following for the boilers and ~~soy~~ **vegetable** oil storage tanks **equal to or larger than 40 cubic meters (10,568 gallons) in volume**, at the appropriate times:

(e) The Construction Condition No. 12(d) has been revised and is as shown below.

12(d) Date of performance testing **for the boilers** (at least 30 days prior to such date), when required by a condition elsewhere in this permit.

(f) The Construction Condition No. 12(e) has been revised and is as shown below.

12(e) Notification of the date upon which demonstration of the performance of **the boilers** CEMs commences, postmarked not less than 30 days prior to such date.

(g) The Construction Condition No. 12(e) has been revised and is as shown below.

12(f) Notification of the specific provisions of # 60.7 (# 60.7 (a), (b), or (c)): ~~with which the owner or operator has elected to comply. Notification of these provisions shall be submitted with the notification of initial start-up required by # 60.7(a)(3).~~ These provisions shall apply as of initial start-up.

Reports are to be sent to:

Compliance Data Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, IN 46206-6015

The application and enforcement of these standards have been delegated to the IDEM-OAM. The requirements of 40 CFR Part 60 are also federally enforceable.

Comment 4:

Operation Conditions

(a) Part 7(a): The applicant had requested that the U.S. EPA use their authority, as contained in 40CFR 60.8(a)(4), to waive specific initial compliance performance tests required by applicable NSPS regulations. The approval letter of U.S. EPA to test the representative facilities is enclosed. The Operation Condition No. 7 should be changed accordingly.

(b) Part 10(b): To reflect that the monitoring of oxygen was not to apply to the grain dryer, "boilers" should be inserted before "controls" in the second sentence.

(c) Part 13: To clarify the intent of the NSPS, insert "exhaust" before "gases" in the opening paragraph.

(d) Part 21: NSPS requirements apply only to some of the tanks. Accordingly, "equal to or larger than 40 cubic meters (10,568 gallons) in volume" should be added after "fuel oil storage tanks".

(e) Part 23(b): It is agreed that this part is not required and should be deleted.

(f) Part 25(a): The minimum mineral oil flow rate limit as contained in this part should agree with Part 24. Accordingly, in the second sentence, replace "or above" with "an average".

(g) Part 27(a): Correct the receipt soybean moisture to 12.5%.

(h) Part 29(d): An inspection should not be required if the unit is operating as designed. Also, an inspection should only be required for a scheduled shutdown, versus an emergency of non-scheduled shutdowns. Revise the wording as follows: An inspection shall be performed during a scheduled shutdown if the pressure drop across a unit measured during the week previous to the shutdown is not within the range as suggested by the manufacturer.

(i) Part 30: To correct the intent of the condition, add "combustion gases" after "grain dryer".

(j) Part 34: In the introductory paragraph, replace condition no. "20" with "21" to refer to the NSPS tank record keeping requirements.

(k) Part 38: In the second sentence of the introductory paragraph, replace "VOC emissions" with "credible reduction" to follow the thought process of the previous sentence.

(l) Part 38(e) To clarify the amount, add "in the aggregate" at the end of the last sentence of the part.

Response 4:

(a) The Operation Condition 7 has been revised to include the NSPS waiver provision, and is shown as follows:

7(a) That pursuant to 40 CFR 60, Subpart DD, and 40 CFR 60, subpart Db, compliance tests; and opacity observations shall be performed for the affected facilities **as per U.S. EPA approval (U.S. EPA Letter of 8/7/98)**, as shown below to comply with the standards in Operation Condition Nos. 12, 13, and 22, within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up.

(b) The Operation Condition No. 10(b) has been revised and is as shown below.

10(b) the permittee shall minimize the carbon monoxide emissions from the combustion boilers, and the dryer through the use of combustion controls on each boiler, and the dryer. The **boilers** controls will measure the oxygen content of the flue gas to determine the efficient operating conditions.

(c) There are no exhaust gases associated with the Operation Condition 13. Therefore, It is not appropriate to call these gases as exhaust gases. Therefore, no change is made to this condition.

(d) The Operation Condition No. 21 has been revised and is as shown below.

That pursuant to 40 CFR 60 Subpart Kb, and 326 IAC 12, the owner or operator shall keep readily accessible records showing the dimension; and an analysis showing the capacity of the hexane storage tanks, soy oil storage tanks **(equal to or larger than 40 cubic meters (10,568 gallons) in volume)**, and fuel oil storage tanks **(equal to or larger than 40 cubic meters (10,568 gallons) in volume)** for the life of the source.

(e) The Operation Condition No. 23(b) has been deleted.

(f) The Operation Condition No. 25(a) has been revised and is as shown below.

25(a) the mineral oil flow rate through the absorber shall be monitored and recorded at least once every calendar day when in operation. The flow rate shall be maintained at ~~or above~~ **an average** ~~the~~ rate determined by the latest stack test;

(g) The Operation Condition No. 27(a) has been revised and is as shown below.

27(a) the soybean for extraction purpose, and the grain for loadout without processing, received by the plant, shall be limited to 2,552,912 at ~~2.5%~~ **12.5%** moisture and 6 % of hull or equivalent, and 1,500,000 tons per 12-month period respectively, rolled on a monthly basis. This production limitation is equivalent to PM10, and VOC emissions of 91, and 937 tons per 12-month period, rolled on a monthly basis, respectively.

(h) This is a preventive maintenance requirement and a means of ensuring ongoing compliance; and the proper operation of the baghouse is needed to comply with the emissions limits established for this PSD permit. However, the Operation Condition 29(d) has been revised to exclude the events of an emergency of non-scheduled shutdowns.

(d) An inspection shall be performed as often as the production line being controlled is on a shutdown **except in case of an emergency of non-scheduled shutdowns**. Defective bags shall be replaced. A record shall be kept of the results of the inspection and the number of bags replaced.

(i) The Operation Condition No. 30 has been revised and is as shown below.

30. That pursuant to 326 IAC 2-2-3, and 40 CFR Part 52.21(Best Available Control Technology) , the grain dryer **combustion gases** shall maintain a maximum operating temperature determined in the compliance tests (described in Operation Condition no. 7) to maintain a maximum of 0.033 lb/MMBTU NOx emissions.

(j) The Operation Condition 34 already refers to 21.

(k) IDEM thinks that this change is not needed.

(l) The Operation Condition No. 38 has been revised and is as shown below.

38 Pursuant to 326 IAC 2-2-5, 40 CFR 52.21(k), and 326 IAC 2-1-3(i)(8), the Permittee shall obtain creditable reductions in the emissions of ozone precursors equivalent to their VOC emissions during the months of May through September. In determining the VOC emissions, the permittee may subtract out the equivalent of 104 tons per period of May through September (the amount equal to a non-major VOC source). A plan to obtain these creditable reductions on an ongoing, annual basis shall be submitted to the department at least 60 days prior to the operation of the plant and updated annually as needed. **Annual updates for the upcoming year shall be submitted prior to January 1 of that year.** The department will approve or disapprove the plan within 60 days of submittal. The plan may account for actual operating days and actual VOC emissions of the plant during the months of May through September period. The plan must identify the means to ensure that the emission reductions occur through an enforceable mechanism. This may include conditions in a modified state enforceable permit or rule.

....

(e) If the Permittee is unable to obtain sufficient permanent emission reductions, the plan may also include the establishment of an escrow account to be used at the direction of the department to identify and obtain any required emission reductions not otherwise addressed in the plan. The escrow account shall include an amount sufficient to procure the remaining required emission reductions. Payments to the escrow account shall be due prior to plant operation if the plan does not provide for sufficient emission reductions during May through September 2000. Payments to the fund shall be due prior to May 1 of any subsequent year that the plan does not include sufficient emission reductions. Total payments to the account shall not exceed $570,000 **in the aggregate**.

Condition 38 may be revisited for modification or deletion if air quality in Posey, Vanderburgh, and Warrick Counties during 1997-1999 does not violate the eight-hour NAAQS for ozone.

Comment 5:

Technical Support Document (TSD)

(a) In the Source Background and Description section, second paragraph, second sentence, add “and meal” after “grains” and delete the third sentence.

(b) In the Total Potential and Allowable Emission section, lead sentence, delete all after “processing”. The referenced table does not include the SO_2 emissions limits.

(c) In the Federal Rule Applicability section, third paragraph (dealing with subpart Kb) first paragraph, after “soy oil storage tank”, insert “s equal to or larger than 40 cubic meters (10,568 gallons) in volume”.

(d) In the Federal Rule Applicability section, third paragraph (dealing with subpart Kb), replace the fourth subparagraph with the following: The vapor pressure of soy oil is less than 3.5kPa. Therefore, only soy oil tanks equal to or larger than 40 cubic meters (10,568 gallons) in volume are regulated. Furthermore, these tanks are exempt from all parts of the above rule except for 40 CFR 60.116(b).

(e) In the Federal Rule Applicability section, third paragraph (dealing with subpart Kb), fifth subparagraph, after "soy oil storage tank", insert "s equal to or larger than 40 cubic meters (10,568 gallons) in volume".

(f) In the Federal Rule Applicability section, fourth paragraph (dealing with subpart DD), replace the fourth subparagraph with the following: If the column dryer has screen openings less than or equal to 0.094 inches in diameter, then the NSPS at 326 IAC 12 and 40 CFR Subpart DD 60.302(a) is not applicable.

(g) In the Federal Rule Applicability section, sixth paragraph (dealing with BACT, NOx Control, Boilers), replace Boilers, with Boilers and Grain Dryer, in the fifth sentence of the introductory paragraph, replace "boiler" with "dryer", and insert a Boilers header prior to the item labeled (a).

(h) In the Federal Rule Applicability section, sixth paragraph (dealing with BACT, VOC Control), in the item labeled (a), in the VOC (Hexane) Emission Limit column, include after 2,552,912 tons (soybeans received) "based on 12.5% moisture and 6% hulls equivalent" as is indicated in Operation Condition 27(a).

(i) In the State Rule Applicability section, third paragraph (dealing with Source Impacts, Requirements, second sentence, insert "may" after "concentrations", since the three years of data is yet to be collected.

Response 5: The OAM prefers that the Technical Support Document reflect the permit that was on public notice. Changes to the technical support material that occur after the public notice are documented in this Addendum to the Technical Support Document. This accomplishes the desired result of ensuring that these types of concerns are documented and part of the record regarding the permit decision.

(a) The revised source description reads as follows:

The Office of Air Management (OAM) has reviewed an application from ConAgra Soybean Processing Company relating to the construction and operation of a soybean oil extraction and refining plant, having a soybean receiving capacity of a maximum of ~~2,850~~ **3,000** tons per hour, and 4,052,912 tons per year and having a soybean crush plant capacity of 6,819 tons/day or 2,552,912 tons/year; a planned loadout of grains, and meal of 1,500,000 tons per year without processing, and a planned soybean oil manufacturing capacity of 497,818 tons per year at the above location. The particulate matter emissions will be controlled by several baghouses, and cyclones. The volatile organic compounds (VOC) emissions will be controlled by a mineral oil absorber, a desolventizer, and condensers.

(b) The lead sentence in section Potential Emissions and Allowable Emissions is revised and reads as follows:

Indiana Permit Allowable Emissions Definition (after compliance with applicable rules, based on limited soybean receiving, and processing~~, and limited emissions of SO_2~~):

(c) The revised TSD reads as follows:

326 IAC 12 and 40 CFR Part 60, Subpart Kb (Standards of Performance for Volatile Organic Liquid Storage Vessels)

The hexane storage tank nos. 1, 2; boiler fuel oil storage tank**s equal to or larger than 40 cubic meters (10,568 gallons) in volume**; and soy oil storage tank**s equal to or larger than 40 cubic meters (10,568 gallons) in volume,** are subject to this rule.

(d) The revised TSD reads as follows:

The soy oil storage tank is of capacity of 1,844 cubic meter, and the vapor pressure of soy oil is less than 3.5 kPa. Therefore, ~~the~~ **only** soy oil tank**s** equal to or larger than 40 cubic meters (10,568 gallons) in volume ~~is~~ **are** exempt from all parts of the above rules, except 40 CFR 60.116(b).

(e) The revised TSD reads as follows:

According to this rule, the owner or operator of the hexane storage tanks, boiler fuel oil storage tank and soy oil storage tank**s equal to or larger than 40 cubic meters (10,568 gallons) in volume**, shall keep readily accessible records of the tanks showing the dimension of the storage tanks and an analysis showing the capacity of the storage tanks for the life of the source.

(f) The revised TSD reads as follows:

~~The column grain dryer has 0.083 inch diameter screen openings in column plate, which is less than 0.094 inch. Therefore the column grain dryer is not subject to New Source Performance Standards, 326 IAC 12 and 40 CFR Subpart DD 60.302(a).~~

If the column dryer has screen openings less than or equal to 0.094 inches in diameter, then the NSPS at 326 IAC 12 and 40 CFR Subpart DD 60.302(a) is not applicable.

(g) The revised TSD reads as follows:

<u>Boilers **and Grain Dryer**</u>

Four methods were evaluated for controlling the NOx emissions from the boilers. These were low -NOx burners, low -NOx burners with flue gas recirculation, ammonia injection, selective catalyst reduction for the boilers, and dryers; and the water quench system for dryers. The current steam boilers are not suitable for either ammonia injection or SCR catalyst. Furthermore, each of these control methods uses ammonia to react with the NOx after it is formed, to provide for NOx reductions.

The ammonia introduced in the ~~boilers~~ **dryer** would contaminate the soybean products produced by the proposed ConAgra Soybean Processing Company's plant. Therefore the followings are established as BACT for the boilers and the dryers.

<u>Boilers</u>

(a) the two refinery(10 MMBtu/hr each), and ~~two~~ **one** reformer (20 MMBtu/hr each) natural gas fired boilers shall not exceed the allowable NOx emissions of 0.0365 pounds/MMBtu heat input;

(b) the two main boilers (200 MMBtu/hr each) shall not exceed the allowable NOx emissions of ~~0.0365~~ **0.035**, and 0.087 pounds/MMBtu heat input when burning natural gas, and very low sulfur distillate oil respectively;

(c) the boilers shall be equipped with the low NOx burners, and the flue gas recirculation systems,

Installation and operation of the low NOx burners and the flue gas recirculation systems for the boilers, are necessary to comply with the BACT emissions limits.

<u>Grain dryer</u>

(a) The 45 MMBtu/hr natural gas fired grain dryer shall not exceed the allowable NOx emissions of 0.033 pounds/MMBtu heat input;

(b) the grain dryer shall be equipped with the low NOx burner.

Installation and operation of the low NOx burner for the grain dryer is necessary to comply with the BACT emissions limit.

(h) The revised TSD reads as follows:

....

Maximum annual soybean process throughput	2,489,089 tons (process) 2,552,912 tons (soybeans received) **based on 12.5% moisture and 6% hulls equivalent**

....

(i) Based on the data available the area is exceeding the eight hour ozone standard now. Therefore, the statement is true, and it will not be changed.

Comment 6:

Appendix B

In Appendix B, Stack Summary, revise or add the following parameters, as addressed in the application and used for modeling:

DF5: height: 55
DF8, 9, 10 & 11: height: 85
DF13: height: 120
BL2020: scfm: 149,150
FL20305: diameter: 0.8
FL20401: diameter: 3.9
FL20601: height: 110, diameter: 1.6
FL20602: height: 110, diameter: 1.6
DF18A: height: 55, diameter: 3.5
DF18B: height: 55, diameter: 3.5
FL20903: temperature: 180
ME50305: height: 42, diameter: 14
ME52401: height: 42, diameter: 14
ME52301: height: 42, diameter: 14
TW30501: diameter: 0.5
Refinery hot well: height: 5
MO5001: temperature: 1016

Response 6: The revised rows of the Appendix B reads as shown below:

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (scfm)	Temperature (^{0}F)
DF5	Barge loading baghouse (DF-5)	~~35~~ **55**	1.7	6,650	70
DF8	Steel tank baghouse (DF-8)	**85**	0.79	1,500	70
DF9	Steel tank baghouse (DF-9)	**85**	0.79	1,500	70
DF10	Steel tank baghouse	**85**	0.79	1,500	70
DF11	Steel tank baghouse	**85**	0.79	1,500	70
DF13	Grain reclaim system #2 baghouse	~~20~~ **120**	1.5	5,500	70
BL2020	Hot dehulling	150	7.0	~~84,517~~ **149150**	140
FL20305	Pod grinding receiver baghouse	110	~~1.1~~ **0.8**	1,500	70
FL20401	Flaker baghouse	110	~~3.0~~ **3.9**	35,000	142
Extractor vent fan	Extractor ~~seal conveyor~~	75	0.5	200	140

FL20601	Meal load out conveyors # 1 baghouse	**110**	**0.6**	6,000	70
FL20602	Meal load out conveyors # 2 baghouse	**110**	**0.6**	6,000	70
DF18A	Rail and barge meal/grain/hull loadout baghouse	**55**	**3.5**	29,000	70
DF18B	Truck meal/grain/hull loadout baghouse	**55**	**3.5**	28,500	70
FL20903	Hull load out system filter	110	2.0	20,000	~~80~~ **180**
ME50305	DE bulk bag unloading	**42**	**14**		70
ME52401	DE bulk bag unloading	**42**	**14**		70
ME52301	DE bulk bag unloading	**42**	**14**		70
TW30501	Mineral oil absorber	75	~~0.4~~ **0.5**	450	72
MO5001	Firewater pump diesel engine (MO-5001)	20.0	0.42	3,177	~~779~~ **1016**

Comment 7:

Appendix C

(a) In the Introduction, the first paragraph is duplicated.

(b) In Part B, Pre-Construction Monitoring and Background Concentrations sections, replace “Darnellsch” with Darnell School”.

(c) In part F, Additional Impact Analysis, third paragraph, last sentence, replace “the modification of” with “that”.

Response 7:

(a) The second paragraph in Appendix C is deleted:

ConAgra Soybean Processing Company (ConAgra) has applied for a Prevention of Significant Deterioration (PSD) permit to construct an integrated soybean processing and grain merchandising plant near West Franklin, Posey County, Indiana. Posey County is designated as attainment for all criteria pollutants. The site is located at Universal Transverse Mercator (UTM) coordinates 435662.9 East and 4194532.0 North. ConAgra's proposed facility will consist of an elevator grain dryer system fueled by natural gas, preparation plant, dehulling system, expander, dryer/cooler and hexane oil extraction processes, distillation system, desolventizer toaster section, Lecithin and refinery processes and five boilers (2 natural gas or #2 fuel oil-fired and three natural gas-fired only).

~~ConAgra Soybean Processing Company (ConAgra) has applied for a Prevention of Significant Deterioration (PSD) permit to construct an integrated soybean processing and grain merchandising plant in Marrs Township near West Franklin, Posey County, Indiana. Posey County is designated as attainment for all criteria pollutants. The site is located at Universal Transverse Mercator (UTM) coordinates 435662.9 East and 4194532.0 North. ConAgra's proposed plant will consist of an elevator grain dryer system fueled by natural gas, preparation plant, dehulling system, expander, dryer/cooler and hexane oil extraction processes, distillation system, desolventizer toaster section, Lecithin and refinery processes and five boilers (2 natural gas or #2 fuel oil-fired and three natural gas-fired only).~~

(b) The revised part of Appendix C reads as follows:

Background Concentrations

Background concentrations for use in the NAAQS analysis were required since the results of the modeling for PM_{10}, SO_2 and NO_2 exceeded their respective significant impact increments. The closest PM_{10} monitoring site to ConAgra is located at 2300 West Illinois Street in Evansville and for NO_2 is the 425 West Mill Road monitor in Evansville. SO_2 monitoring data was taken from the ~~Darnellsch~~ **Darnell School** Rd. monitor in Posey County. Background concentrations are listed below in Table 4.

(c) In part F, Additional Impact Analysis, third paragraph, last sentence, "the modification of ConAgra" is replaced with "ConAgra plant". The revised paragraph reads as follows:

The nearest Class I area to the proposed soybean processing facility is the Mammoth Cave National Park located approximately 120 km to the southeast in Kentucky. The operation of ConAgra will not adversely affect the visibi-lity at this Class I area. The results of the additional impact analysis conclude the ~~modification of~~ ConAgra **plant** will have no adverse impact on economic growth, soils, vegetation or visibility in the immediate vicinity or on any Class I area.

Comment 8: Southern Indiana Gas And Electric Company (SIGECO), Mr. Jim Spinney (Posey County Farm Bureau) and ConAgra Soybean Processing Company

Operation Condition 3 - Preventive Maintenance Plan

The Permit requires that the Permittee maintain a Preventive Maintenance Plan in accordance with 326 IAC 1-6-3. Specifically, Operation Condition 3(a) requires that the Permittee provide an identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices.

The Permittee is already required to maintain a Preventive Maintenance Plan in accordance with the regulations at 326 IAC 1-6-3. This requirement is incumbent upon all facilities operating under permits issued by OAM pursuant to the Air Pollution Control Board regulations at 326 IAC 1 et seq. In order to remain in compliance with 326 IAC 1-6-3(a)(1), a permittee is required to update the Preventive Maintenance Plan for each change in personnel responsible for inspecting, maintaining, and repairing the emission control devices. When made a condition of the Permit, each change in personnel responsible for the repair and inspection of the emission control devices may necessarily require a revision to the permit, otherwise the permittee is in violation of a permit condition and potentially subject to the revocation provisions at Operation Condition 5(a). The incorporation of the regulatory requirements for the approval of the Preventive Maintenance Plan as a condition of the proposed Permit, and the resulting necessity for frequent revisions to the Permit to update the Plan after the Permit is issued is unduly burdensome and does not allow the flexibility required to maintain a current and effective Preventive Maintenance Plan.

ConAgra requests that identification of the position rather the person should be stated in Operation Condition 3(a).

Response 8: The change in personnel responsible for the repair and inspection of the emission control devices does not require a revision to the permit. When a change in the individual is made, the company needs to change only the name of the individual in the Preventive Maintenance Plan. The company does not have to get approval of the plan each time the change in individual occurs. The company is only required to keep the records.

No changes have been made to this condition in the final permit.

Comment 9: Hoosier Environmental Council (HEC), Mr. John Blair (Valley Watch), Mr. David Coker (Save Our Land and Environment), and Consolidated Grain and Barge Company (CGB); and SIGECO

The Hoosier Environmental Council and Mr. John Blair request a 30 day extension of the public comment period for the proposed permit. They believe such an extension is in the best interest of the public as the comment period is scheduled to close on June 16, just one day after the public hearing. This does not leave adequate time for members of the public to consider, and comment on, matters brought up at the hearing. They also believe such an extension is appropriate due to the complexity of the proposed permit and ConAgra's proposed operations.

Response 9: The Office of Air Management (OAM) has extended the comment period until June 30, 1998 to give the public an opportunity to comment after the hearing.

Comment 10: Hoosier Environmental Council (HEC), Mr. John Blair (Valley Watch), Mr. David Coker (Save Our Land and Environment), and Consolidated Grain and Barge Company (CGB); and SIGECO

ConAgra's proposed soybean oil extraction plant would have significant adverse impacts on the environment of southwestern Indiana and its economy for many years to come, if it is allowed to build under the conditions imposed by the proposed air quality permit. The most significant impact from the new plant would be from emissions of 937 tons per year of Volatile Organic Compounds (VOCs) and 83 tons per year of Nitrogen oxides (NOx). VOCs and NOx are precursors of ozone, and Vanderburgh, Posey, Gibson, and Warrick Counties are expected to be designated as a nonattainment area for ozone under the new, more stringent, 8-hour ozone standard. Even early this ozone season several exceedances of the 8-hour standard have occurred and many more can be expected throughout the summer. This regional problem is mainly due to the huge volumes of VOC, and oxides of nitrogen (NOx) that are emitted primarily by point and area sources.

The modeling analysis has a number of serious errors, if corrected, would show a much larger increase in ambient ozone level as a result of the proposed plant's emissions.

The VOC inputs to the model are a factor of six smaller than the estimated emission rates.

The modeling results appear to report the plume average rather than the centerline impacts.

It is unclear whether RPM-IV modeling is representative of air quality conditions in the vicinity of proposed plant and represents worst-case ozone impacts.

Any new source of VOC emissions, particularly a major source such as the proposed ConAgra plant, will only make it more difficult to meet the 8 -hour ozone standard, and the burden for obtaining emission reductions will fall squarely on the existing industries and citizens of southwestern Indiana. IDEM records show VOC emissions from all stationary sources in Vanderburgh County to be 2,800 tons per year. This single new source alone would increase VOC emissions from stationary sources by over 33%.

Dominant wind patterns during high ozone days in Vanderburgh County are nearly always from southwest to northeast, which really means that this site is probably the worst possible site that could have been chosen if air impacts were the main consideration.

The amount of offsets provided for is only a fraction of the increases expected from the ConAgra emissions. The amount required represents approximately 73% of the ozone season VOC emissions from ConAgra, and none of the NOx emissions. Offsets which are available come from sources which operate year round and controlling emissions only during the ozone season is not a reasonable expectation. Therefore, the amount of offsets required should be based on the full year and not only on the five month long ozone season.

In order to offset the new emissions, equivalent emission reductions need to be obtained in an amount and from a location which will adequately counteract the impact from the new site. However, an offset of 937 tons per year of VOCs from existing sources impacting the Vanderburgh County area is virtually impossible to obtain. This would require the installation of controls which would reduce emissions from all existing stationary sources in Vanderburgh County by over 33%.

IDEM has proposed that ConAgra provide 286 tons per year of emission offsets in the first year of operation, or if the offsets can not be obtained, ConAgra would have to pay up to $570,000 into a fund which IDEM would use to pay for emission reductions. This would set a bad precedent as the state should not be in business of finding emission offsets for polluting industries- that burden should remain with the polluting industries.

The state routinely requires applicants to install controls on new sources which cost $5,000 per ton per year or more. At $5,000 per ton the cost for existing sources to offset the impact of the emission increases from ConAgra's proposed plant would be as high as $5,000,000 per year. The cost over the next twenty years could be over $100,000,000.

In spite of all funds availability, there is no assurance that the necessary amount of offsets are available for purchase by the IDEM.

Although the Clean Air Act of 1990 does stipulate a form of emissions trading for SO_2, no such provision exists for VOC.

Allowing for 1 to 1 offsets of VOC emissions with reductions in NOx emissions is another major flaw and, if granted, would set a very bad precedent for future permits statewide. There is no evidence that reductions in NOx emissions have an equivalent benefit in the prevention of the formation of ozone as reductions in VOC emissions.

Finally, the permit is improperly lenient in only requiring a plan to obtain future offsets as a condition to commencing operation of the proposed plant. ConAgra should be required to identify specific enforceable offsets prior to receiving approval to construct the new plant.

SIGECO Comment (Not in favor of any offset proposed for the permit):

The ConAgra facility is to be located in Posey County, Indiana, which is designated an attainment area for all NAAQS standards. The Office of Air Management has made no finding that the proposed ConAgra facility will significantly impact upon the air quality of a nonattainment area. Thus, the proposed ConAgra facility must comply with the PSD requirements of 326 IAC 2-2 for attainment areas, not the emission offset requirements set forth in 326 IAC 2-3 for facilities proposing to build in, or significantly impact, non-attainment areas.

The Office of Air Management cites the following regulatory provisions as authority for the ozone emission offset requirements proposed in Operation Condition 38: 326 IAC 2-1-3(i)(8), 326 IAC 2-1-5, and 326 IAC 2-2-5.

326 IAC 2-1-3(i)(8) does not provide the Commissioner to impose offset requirements in a permit reviewed under 326 IAC 2-2.

Response 10: **Response to various comments regarding the demonstration that ConAgra will not cause or contribute to future violations of the NAAQS for ozone and the content of the "emission offset" provision.**

The IDEM carefully considered a number of legal and technical issues regarding ConAgra's emissions and their impact on future ozone concentrations in the greater Evansville area. Many of these issues have subsequently been raised by the commentators. The core issues involve the revised National Ambient Air Quality Standard for ozone and the schedule that the U.S. EPA has established for implementing it. The revised standard itself was effective on July 17, 1997. The federal schedule requires that air quality from 1996 through 1998 be evaluated to determine which geographic areas do not meet the standard and states are to submit the list of these areas to U.S. EPA in July 1999. U.S. EPA's designations of attainment or nonattainment and the development of revised State Implementation Plans will follow.

The requirements for obtaining a permit to construct a major source of air pollution depend on the designation of the area in which the source has applied to locate. Part D of the Clean Air Act and the corresponding provisions of 326 IAC 2-3 apply only to those areas that have been formally designated as nonattainment for a criteria air pollutant. The requirements for obtaining a permit to build a major source in a nonattainment area include the requirement to obtain emission offsets at ratios that depend on the severity of the nonattainment designation. The Prevention of Significant Deterioration (PSD) provisions of Part C of the Clean Air Act and the corresponding federal and state rules codified at 40 CFR 52.21 and 326 IAC 2-2 respectively, govern the approval of permits for new major sources that would be located in areas that are not designated as nonattainment. These rules require, among other things, a demonstration that a new major source will not cause or contribute to a violation of any NAAQS (326 IAC 2-2-5).

Because Posey County is not designated as nonattainment, the PSD rules apply and the nonattainment rules do not. However, the IDEM has evaluated recent air quality from Posey County and vicinity. The data indicates that air quality does not currently meet the revised ozone standard. This is an important consideration and was taken into account when evaluating ConAgra's demonstration that their emissions would not cause or contribute to a violation of the NAAQS for ozone.

Under PSD this NAAQS demonstration is made using computer-based air quality dispersion models that predict the impact that a new source will have in the area. The U.S. EPA has approved the Reactive Plume Model 4 (RPM-4) for use in predicting the impact of a single source on ozone levels. This is the model that IDEM has used to evaluate previous permit decisions involving major sources of ozone precursors. This modeling was performed in accordance with U.S. EPA approved modeling procedures and the IDEM believes that this is the best available modeling tool for evaluating a single source in the greater Evansville area at this time. One commentator suggested that the Urban Airshed Model would be a better modeling tool. This photochemical grid model can be developed after collecting emissions and air quality data and then validating the model for the specific area. The Urban Airshed Model has been approved by the U.S. EPA for testing the effect of various control strategies across an entire region and demonstrating that a control strategy is adequate for attaining ambient air quality standards.

Many sources can be included in the model, but they are characterized by averaging all emissions across geographic areas or grids measuring 4 by 4 kilometers on a side (or 12 by 12 or even greater depending on the application). The lack of a rigorously validated model for the area and the inherent difficulties associated in averaging emissions over a large grid make the Urban Airshed Model unsuitable for this application.

The U.S. EPA has established significant impact levels for particulate matter, sulfur dioxide, and oxides of nitrogen for the purpose of defining when an increase would be considered as contributing to a violation of a NAAQS. These levels are 1, 5, and 25 micrograms per cubic meter for each pollutant's respective annual, 24-hour, and 3-hour NAAQS (when applicable) impact. The U.S. EPA has also established higher levels for carbon monoxide, but has not established such a level for ozone. Twenty-five micrograms per cubic meter of ozone is equivalent to a concentration of 12 to 13 parts per billion. Eight hour average impacts would be less. As described more fully in the original Technical Support Document, the Reactive Plume Model predicts that the impact of ConAgra's emissions could increase one hour ozone concentrations by one part per billion. This is small compared to the levels that are established for other criteria pollutants. In the past the IDEM has also compared predicted future impacts to the U.S. EPA specifications for ambient air quality monitors as a guide to a significant impact. The monitors used to measure ozone concentrations in the ambient air do not have the precision necessary to measure differences in concentration that are within one part per billion.

Regardless of the choice of computer model, there are considerable uncertainties associated with predicting the impact that any single source will have on future ozone concentrations. In this specific permitting situation the IDEM believes that it is prudent to include an extra measure of certainty to the demonstration that ConAgra will not cause or contribute to a future violation of the NAAQS.

The emission offset provision of the nonattainment rules is intended to ensure that a new major source will not interfere with the attainment strategy developed as part of the State Implementation Plan. The IDEM used a modification of this concept by incorporating an emission offset condition in ConAgra's proposed permit. The condition is not established pursuant to the nonattainment permit rules and isn't intended to implement those provisions as would be required for a nonattainment area permit. The condition is intended to be consistent with whatever future air quality planning efforts are necessary to ensure that the State Implementation Plan is adequate to attain and maintain air quality in compliance with the revised NAAQS for ozone. These effects will address the regional nature of ozone formation. The emphasis will focus on area- wide strategies rather than small scale wind direction and special considerations. The condition includes a reasonably defined geographic area, addresses both volatile organic compounds (VOC) and oxides of nitrogen, allows for the different ozone forming potential of various classes of VOC as would be done in an attainment demonstration using air quality models, and otherwise contemplates future air quality planning needs. The emission reductions that are required by this condition will significantly lower the level of precursors to ozone formation in the greater Evansville area during the months that ozone is high. The net effect of the condition is that ConAgra's impact on future ozone levels will be that of a much smaller source.

The condition does allow ConAgra the option of contributing to a fund that the IDEM would direct toward obtaining permanent emission reductions. The IDEM believes that this is appropriate to provide ConAgra with reasonable certainty with respect to its future obligation under this permit. The future cost of obtaining emission reductions is uncertain. But if ConAgra exercises this option at its total liability of $570,000, this fund will provide a new market force to affect permanent emission reductions in the greater Evansville area.

Ozone Nonattainment

Comment 11: Honorable State Representative Dennis Avery, Hoosier Environmental Council (HEC), Mr. David Coker (Save Our Land and Environment), Mr. John Blair (Valley Watch), Consolidated Grain and Barge Company (CG & B), Ms. Margaret Moye, Ms. Valarie West, and Mr. David & Mrs. Jeanette Hunter

State Representative Dennis Avery expressed concerns that he and his constituents had regarding current and future compliance with the National Ambient Air Quality Standard for ozone. These concerns included the health impacts of breathing polluted air and that the door would be closed on future development and growth in the area. He stated that the IDEM was entrusted with the responsibility to ensure that regulatory requirements and that all the issues raised at the hearing were properly addressed. He appreciated that IDEM had worked with ConAgra to ensure that the proposed permit might be the best in the country. However, the plant would still be a very large source of air pollution and would push ozone levels into noncompliance with the NAAQS for ozone. He was very concerned that the cost would be borne by his constituents, individual citizens and businesses alike.

Mr. John Blair, Mr. David Coker, HEC, CG & B, Mr. David & Mrs. Jeanette Hunter, Ms. Margaret Moye, and Ms. Valarie West expressed similar concerns related to ozone nonattainment, not requiring local petroleum vendors to sell lower Reid Vapor Pressure gasoline, including problems with implementing various control measures, and the impact that ConAgra would have on attaining the compliance with the NAAQS.

Response 11: The IDEM agrees that noncompliance with the revised ozone standard is a very serious issue and has been actively engaged in developing solutions at both the national and local level. The OAM will continue to work with the local ozone steering committee to develop effective revisions to the State Implementation Plan (SIP) for attaining and maintaining compliance with the NAAQS. The revised SIP will be developed in accordance with the requirements of the Clean Air Act and U.S. EPA regulations and with the input of local interests to ensure that the revised plan best meets the needs of the greater Evansville area. While the portion of the SIP affected by the “NOx SIP Call” by the U.S. EPA is not yet defined, it is clear that it will result in very substantial reductions in ozone precursors across the entire Midwest. Emission reductions from Indiana sources will be especially significant and regional air quality modeling predicts a substantial reduction in ozone concentration as well. The “cost” of these reductions will likely be shared across the state. The modified emission offset condition will also lessen the impact on existing sources. The types of control measures that will be required under the revised SIP and the schedule for implementing them has yet to be established. The ConAgra permit has been crafted to minimize problems with the development of the revised SIP and to help ensure that attaining compliance with the NAAQS is not jeopardized.

Comment 12: Hoosier Environmental Council (HEC), Mr. David Coker (Save Our Land and Environment), Mrs. Gail R. Normon, Mr. David E. Hunter, Mrs. Jeanette E. Hunter, Mr. John Blair (Valley Watch), Consolidated Grain and Barge Company, Ms. Margaret Moye, and Mrs. Valerie West

Comment (a): Ozone poses a serious health threat as an irritant to the cardiopulmonary system, especially affecting persons with lung disorders, athletes, children, and the elderly. In addition to human health impacts, ozone also has serious effects on certain crops such as melons which are grown in southwestern Indiana.

Response (a): The U.S. EPA has established a health-based National Air Ambient Quality Standards (NAAQS) to protect public health. These maximum limits for certain air pollutants designated as criteria pollutants are based on scientific evidence. No significant impact on human health or welfare is expected as long as the concentrations of the criteria pollutants remain below the established level. The ConAgra's modeling results indicate that it will not violate any established emission standards for particulate matter, oxides of nitrogen, carbon monoxide, sulfur dioxide or ozone.

The proposed permit for ConAgra Soybean Processing Company must meet the criteria established by state and federal rules under the Prevention of Significant Deterioration (PSD) program. These rules require the company to install the best available control technology to the pollutants which are emitted above the significant levels. The permit is issued only after it is shown from the modeling that it will meet all the criteria established per these rules.

The proposed permit for ConAgra Soybean Processing Company complies with all state and federal air regulations.

Comment (b): Almost all of the VOCs will be emitted in the form of hexane (927 tons per year), which is also classified as a hazardous Air Pollutant. Sources which emit more than 10 tons of any single Hazardous Air Pollutant such as Hexane are considered Major Sources under the Clean Air Act.

Mr. Blair and CGB stated that only BACT determination for this project was made and no MACT analysis was performed for this project.

Response (b): Hexane is a hazardous air pollutant regulated under Section 112 of the Clean Air Act. Indiana was th first state in the country to implement that provision of the Clean Air Act, which requires the major sources (single hazardous air pollutant (HAP) of ten tons per year and/or combined HAPs of twenty five tons per year) to employ the Maximum Available Control Technology (MACT). This means ConAgra has to be controlled at least like the best controlled similar source. This plant will have controls that are more stringent than any plant in the country in its source category. No similar source was found outside its own source category. U.S. EPA has not established a threshold or health-based criteria for this pollutant, but requires that it be limited to the maximum extent possible, given all available technology.

The emission limitations established by this permit satisfy the requirements of both BACT for volatile organic compounds, and MACT for Hexane.

The IDEM used air quality dispersion modeling to predict the impact that the Hexane emissions will have on ambient air quality. As more fully described in the Technical Support Document, the Hexane emissions from ConAgra are predicted to increase ambient concentrations of Hexane by a maximum of 2049 micrograms/cubic meter per hour average. While there are no specific ambient air quality standards for Hexane, this increase represents approximately 0.11% of the OSHA PEL. This will not result in any additional significant risk to public health.

Comment (13): Consumption of PSD increment

Mr. Blair stated that there would be no future growth allowed in the area because ConAgra's emissions will consume nearly 80% of the maximum allowable increase in PM-10 concentration.

PM_{10} and SO_2 increments will be gobbled up by this plant for very few jobs. The levels of pollution per job is very high for this facility. SIGECO has indicated a desire to build two additional 500MW power plants adjacent to the proposed plant and will be denied the right to do so if ConAgra uses all of the remaining PSD increment on this plant.

There are concerns with the adequacy of the analysis which ConAgra has performed, and the actual impact could be even higher.

Response (13): The Federal Prevention of Significant Deterioration rule would allow a single source to consume the entire maximum allowable increase, also known as PSD increment. Indiana's rules restrict any single source to no greater than 80% of the available increment to ensure that there is always some increase available for future growth. It is important to note that the impact that sources have on increment consumption is dependent on time (that is the meteorological conditions) and the location of the impact. ConAgra's maximum impact occurs at specific locations on the eastern and western edges of the plant site. The highest impacts are associated with specific meteorological conditions and are lower under different conditions. Even under the specific meteorologic conditions, a future source could have an impact equivalent to 16% of the PSD increment (80% of the remaining available 20%) at the site of ConAgra's maximum impact. ConAgra's impacts decrease rapidly farther away from the plant. While ConAgra's emissions will affect increment across the area, the PSD program will be able to accommodate the impacts of future industrial growth. It should be pointed out that the PSD increment for PM 10 ensures that air quality will remain well below the NAAQS in the future as well.

Comment 14: Ms. Pauline Luise Burgdorf, Mr. David Coker (Save Our Land and Environment), Ms. Gail R. Normon, Mrs. Geneva King, Mrs. Linda L. Goebel, Mr. John Blair (Valley Watch Inc.), Mrs. Margaret E. Dubois, Miss Janis Dubois, and Mr. & Mrs.Thos King

Comment (a): Mrs. Burgdorf is a resident of the West side of Evansville and owns property in the vicinity of West Franklin, and lands in the path of railroad and highway facilities proposed for the West Franklin site. Our family has owned the farmland for the last one hundred and fifty years. We are also celebrating the 150 th year of family reunion, and 150th anniversary of this community's church. We want to preserve this historic site.

Mrs. Burgdorf wants the ConAgra to locate in some community such as Kentucky.

Valley watch suggests that ConAgra should build the plant at Southwind Maritime Center.

Response (a): Air pollution control rules do not directly regulate plant location decisions. Local governments have jurisdiction on zoning issues, and it is the IDEM's understanding that the proposed plant is acceptable under local zoning requirements. It is not within IDEM's authority to respond to the question regarding preservation of the historic sites or building the plant at other sites.

The legal requirements and content of the air permits would not be substantially affected if ConAgra was to locate at the Port.

Comment (b): The proposed plant will be setting on a fifteen feet fill consisting of flyash and other soil which will be located in the flood way next to the Ohio river. The part of the fill will wash out in the river. If ConAgra locates at Port site, this wash away problem will not occur.

This site is a wetland that floods every year. All core samples have shown that the area is bottomless. West Franklin riverbank contains one of the largest mussel beds along the Ohio river. It may destroy the mussel beds.

This site sits on two seismic faults.

Response (b): ConAgra has said that it will not fill the site with flyash, but it will fill with natural construction fill material. The United States Army Corps of Engineers and the Indiana Department of Natural Resources are the agencies which approve these projects.

Fill projects involving wetlands and seismic faults must be permitted by the United States Army Corps of Engineers. The United States Army Corps of Engineers will take necessary action to see that wetlands are not destroyed and grant or deny the permit. The Indiana Department of Natural Resources oversees all issues relating to flooding in our state, according to the Indiana flood control act.

IDEM has determined that the water quality in the area will not be adversely affected by this plant, and has issued a wetland permit.

Comment (c): Posey County has the highest cancer rate in the nation. The ConAgra plant will be adding 1500 tons of hexane a year. This will increase the cancer rate in the area.

Response (c): Hexane emissions will be 927 tons per year as more fully described in the Technical Support Document. There is no scientific evidence to indicate that the expected emissions from this source will increase the cancer rate, or have any significant adverse effect on human health.

Comment (d): Mrs. Burgdorf wants to know if this plant will have stinky odor like the odor from Azteca plant situated north of Evansville.

Response (d): The IDEM does not believe that there will be a chronic severe odor problem from the proposed plant.

Comment (e): Before issuing the air permit, IDEM should ensure that ConAgra operation will be the safest operation.

Response (e): The IDEM believes neither air nor water quality will be adversely affected by the emissions from the permitted facilities. The maximum impact of the hexane emissions from this plant will be less than 0.11 % of the OSHA's permissible emission limit.

Comment15. <u>Consolidated Grain and Barge Company (CG&B), and Mr. John Blair (Valley Watch Inc.)</u>

Comment (a): BACT for the oil extraction system was determined to be a mineral oil absorber with a 0.076 pounds of VOC per ton of grain processed emission limit. There are two concerns with this limit. The concern is, whether this emission limitation can in fact be met consistently in practice. If in fact the system can not perform at this level, higher VOC emission rates will occur without any mitigation for the higher emission levels built into the permit. The state should identify where similar systems are in use along with data to support that the proposed limits can be met.

Response (a): The manufacturer of the mineral oil absorber has given the guaranty of 0.076 pounds per ton of soybean processed. The manufacturer gives the guaranty after it has tested in the laboratory or prototype operations. There is a limit on overall hexane emission rate for the whole plant, which ConAgra may not exceed. The permit operation condition 7 requires VOC emissions from this mineral oil absorber to be stack tested to verify the emission limit.

Comment (b): The concern is the form of the proposed limits which assumes that all emissions may be associated with the production of oil from soy beans. Hexane emissions could also be associated with the refining of the purchased oil, and therefore, tracking the throughput alone would not account for all refined purchased oil. If ConAgra does not intend to refine purchased oil, then the permit should prohibit such practices. If they do intend to refine purchased oil, then the VOC emissions limitations can not be expressed solely as a Hexane loss per ton of soybean crushed and an overall soybean processing limit.

In addition, the compliance determination, compliance monitoring, record keeping, and reporting provisions would need to account for such practices, by tracking the purchases of oil and accounting for the hexane losses from any processing of such oil.

Response (b): Operation Condition 22 has been revised to add the limit of total annual amount of all vegetable oils (purchased and processed) to be refined. In order that the purchased oils do not exceed the Hexane concentration more than what is established for the oil manufactured from this plant, a limit on the concentration of Hexane in all vegetable oils to be refined, has also been established in a new Operation Condition 39 as shown below:

VOC BACT Requirements

22. That pursuant to 40 CFR 52.21, 326 IAC 2-2, 326 IAC 8-1-6, and 326 IAC 2-1-3.4, VOC (hexane) emissions from this plant shall comply with the Best Available Control Technology (BACT) as follows:

(a) BACT for the soybean oil extractor; meal dryers; meal cooler; and whole soybean extraction, and refinery plant shall be as follows:

Facility	Control	VOC(Hexane) Emission Limit
Oil extractor	Mineral oil absorber system	0.076 lb/ton of grain processed
Meal dryers	None	0.228 lb/ton of grain processed
Meal cooler	None	0.083 lb/ton of grain processed
Total hexane loss rate for the plant for the first year		0.20 gals/ton soybean crush
Total hexane loss rate for the plant after the first year		0.16 gals/ton soybean crush
Maximum annual soybean process throughput		2,489,089 tons (process)

Maximum vegetable oil refining capacity	**497,818 tons (process + purchased**)

The above vegetable oil capacity does not include the vegetable oil purchased for packaging only.

<u>Hexane Content of Oil to be Refined</u>

39. That the average Hexane content of the crude vegetable oils to be refined, shall be limited to 100 pppmw. The Hexane concentration in those oils shall be analyzed once each calendar month.

The total amount of each type of oil refinedby weight, and the Hexane concentration in each type of oil shall be determined each calendar month. From these weights and hexane concentration of oils, an weighted average of Hexane concentration shall be determined each calendar month.

Comment (c): The proposed limitations for the meal dryers and meal cooler do not represent the most stringent limit currently being required of similar producers. The proposed limit of 0.228 lbs VOC per ton of grain processed is less stringent than the 0.16 lbs VOC per ton of grain processed for a similar Central Soya facility. In addition, 0.083 lb VOC per ton grain processed limit is less stringent than the 0.06 lb/ton limit for CGB facility in Mt. Vernon.

Response (c): The individual hexane emission limits come from the design of the equipment. This set of equipment is such that more emissions are controlled by the absorber and less by the meal dryers and meal cooler. The real performance of the plant is determined by the overall Hexane emission rate in terms of gallons per ton of soybean processed or crushed. The individual equipment; and the overall limits on Hexane emissions for the stated plants are given below for comparison purposes.

	<u>Central Soya Co.</u>	<u>Consolidated Grain & Barge Co.</u>	<u>ConAgra</u>
Absorber	0.12 lb/ton	0.16 lb/ton	0.076 lb/ton
Meal dryer	0.16 lb/ton	0.33 lb/ton	0.228 lb/ton
Meal cooler	0.16 lb/ton	0.06 lb/ton	0.083 lb/ton
The overall hexane emission limit	0.24 gal/ton	0.24 gal/ton	0.16 gal/ton

Even though the individual emission limits are different, the overall hexane emission rates will be lower at ConAgra.

Comment (d): The application and the proposed permit fail to adequately demonstrate that the proposed level of control for NOx emissions from the five boilers represents BACT as required by 326 IAC 2-2-3 and 40 CFR 52.21(j).

The application and the technical support document reject the use of more effective control options including ammonia injection or Selective Catalytic Reduction (SCR), since the "current steam boilers" were not suitable for either of these controls and since ammonia could contaminate the products produced by the process. Since the boilers are new processes, the argument that ammonia injection or SCR are not suited to the boilers selected is not valid. The source could elect to use boilers which are suited to either of these technologies. The state did in fact, require Beta Steel Company to use SCR to control NOx emissions from a gas fired furnace. In addition, since the boilers provide heat through indirect heat transfer, and since the steam side of the heat exchanger is at a much higher pressure than the combustion gas side, the ammonia injected could not come into contact with the process. For these reasons we believe that these two technologies should have been treated as "technically feasible" alternatives under the BACT assessment, and that the cost effectiveness of using either of these technologies needs to be evaluated as part of the BACT assessment.

Even if it is determined that add on controls such as SCR are not cost effective, we believe that the proposed NOx emission limit of 0.0365 lbs/MMBtu is less stringent than similar limits required by other permits where the use of low - NOx burners and flue gas recirculation were required. For example, the BACT/LAER Clearing House indicates that natural gas boilers at the Philadelphia Naval Ship Yard were required to meet a limit of 0.035 lbs/MMBtu.

Response (d) The following detailed explanations are provided in justification of the BACT determination for the boilers.

BACT means an emission limitation based on the maximum degree of reduction for each pollutant emitted by a source that is determined to be achievable by such a source. This determination is required to be made on a case by case basis taking into account the energy, environmental, and economic impacts; and the application of a number of techniques to control air pollution. IDEM not only reviewed the BACT submittal from ConAgra, but used many sources of information to evaluate BACT, including general information from AP-42 (U.S. EPA Compilation of Air Pollution Emission Factors), and US EPA's RBLC Facility Details. Establishing the emission limitation is primarily driven by specific information from equipment suppliers, permit limits established for other sources, and other information relevant to the definition of BACT. There are a few limits as low as 0.011 lb/MMBtu on boilers in California. However, the bulk of recent BACT determinations and other limitations established for natural gas fired boilers of this size, including California's general NOx limits, range from 0.036 to 0.2 pounds of NOx per MMBtu heat input.

SCR Technical feasibility

In the SCR system ammonia is injected into the flue gas upstream of the catalyst bed, whereupon intimate mixing occurs between the ammonia and NOx (predominantly NO at this point in the process). The mixture then passes through a catalyst bed such that reduction of NO to N2 is promoted.

$NO + NH_3 \sim N_2 + 3/2\ H_2O$

The function of the catalyst is to lower the activation energy of the NO decomposition to N_2 reaction. In other words, if there were no catalyst, the reaction would have to take place in the furnace (or other location) where the temperature ranges from 1600 - 1800^0F, which is the necessary temperature ranges for NO decomposition. With the catalyst, however, the optimum temperature required for NO reduction is between 530 and 800^0F. If the catalyst were placed in a location with a lower temperature, the reaction rates would decrease. Catalyst location at higher temperatures would impair the catalyst's performance and shorten catalyst life.

For the proposed steam boilers, the flue gas would have to be reheated to raise the temperature to at least 525^0F for successful SCR performance. Also, specific problems have been associated with the design and operation of an ammonia injection system. Such considerations as control of NOx/NH_3 ratio for variable load conditions, locations and operation of the NH_3 injection nozzles, and breakthrough of NH_3 from the catalytic reactor have been noted in test programs and operational units.

As was recently determined by Grain Processing Corporation (GPC) for CP 027-7239, the SCR annualized cost is in excess of $2,000,000 for a boiler of similar size and location in the State of Indiana.

Beta Steel company has installed SCR control on one of their reheat furnace. Reheat furnaces are totally different combustion sources than the steam generating boilers.

Ammonia Injection Technical Feasibility

Ammonia injection is a post-combustion, selective non-catalytic reduction (SCNR) method for NOx control which was patented by Exxon Corporation in 1975 under the trade name Thermal DeNOx. The process selectively reduces NOx by reaction with ammonia (NH_3) which is injected directly into the combustion chamber or into a thermally favorable location further downstream. The process was originally applied to combustion sources in Japan to achieve 65% NOx reduction. Recently improved technology has resulted in some domestic commercial facilities achieving removal performances of 80%.

One major design challenge for all applications is achieving and maintaining the required reaction temperature. The necessary temperature window for the system to operate is found in different areas of the combustion source; the exact location depends on the furnace design and operating load. Another major design problem for all applications is allowance for adequate NO/NH_3 contact. Adequate contact requires both optimum injector locations and appropriate residence time. Without optimum injector location and residence time, more ammonia is required to achieve a given NOx reduction, at the expense of greater levels of ammonia slip, and raw ammonia injection.

For an application to this size of boilers, assuming that a suitable location is available for ammonia injection, and the flue gas temperature and residence time profile is satisfactory, 50% NOx reductions can be achieved with Thermal DeNOx process, with less than 20 ppm ammonia slip. It has been reported that the optimum operating conditions are not always available, and therefore, the potential NOx reductions will be much lower. Based on an expected NOx control efficiency of 30% to 40%, application of this technology is not better than low NOx burner and flue gas recirculation, whose efficiency for the proposed boilers are approx. 80%.

The EPA-453/R-94/022 report "Alternative Control Techniques Document– NOx Emissions from Industrial/Commercial/Institutional (ICI) Boilers" excludes the SNCR technology as control for reducing NOx emissions from natural gas fired boilers.

A search of the BACT/LAER Clearinghouse was conducted to determine if SCR or Thermal DeNOx control technologies have been determined as BACT for these types of boilers. No natural gas fired boilers were found to have these types of controls.

IDEM has further investigated and found that two boilers at Philadelphia Naval Shipyard have been permitted with NOx emission limit of 0.035 lbs/MMBtu. The City of Philadelphia, the issuing Agency for these boilers, has stated that these boilers are expected to meet the NOx emission limit. The final permit for ConAgra has been revised to include this lower emission limit for the two main boilers.

Therefore, the NOx emission limit for main boilers has been revised to 0.035 lbs/MMBtu.

The incremental cost effectiveness for the small boilers were calculated to be as follows:

(a)	**Cost of the Coen burner (NOx emissions = 0.035 lbs /MMBtu)**	**= $ 123,815**
(b)	**Cost of the Maxon burner (NOx emissions = 0.0635 lbs /MMBtu)**	**= $24,310**

For 10 MMBtu/hr,

NOx emissions (Based on 0.0365lbs/MMBtu)	**= 1.598 tons/yr**
NOx emissions (Based on 0.035lbs/MMBtu)	**= 1.533 tons/yr**
Incremental Cost	**= ($123,815 - $24,310) /(0.065 tons)**
	= $1,530,846 / ton

For 20 MMBtu/hr,

NOx emissions (Based on 0.0365lbs/MMBtu)	**= 3.20 tons/yr**
NOx emissions (Based on 0.035lbs/MMBtu)	**= 1.07 tons/yr**
Incremental Cost	**= ($123,815 - $24,310)/(0.13 tons)**
	= $765,423 / ton

Therefore, the incremental cost of Coen burner for 10 and 20 MMBtu/hr boilers are excessive.

As a result of the change in NOx emission factor for the main boilers, the changes on the following pages of the Appendix A, TSD, and Permit have been made and are as shown below:

<u>Appendix A</u>

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Unit	PM/PM10 (lb/unit)	SO2 (lb/unit)	NOx (lb/unit)	VOC (lb/unit)
......	......	......	~~36.5~~ **35.0**	....

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Unit	PM/PM10 (tons/yr)	SO2 (tons/yr)	NOx (tons/yr)	VOC (ton/yr)
......	......	......	~~63.9~~ **61.3**	....

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	PM/PM10 (tons/yr)	SO2 (tons/yr)	NOx (tons/yr)	VOC (ton/yr)
Main plant	....	....	~~59.3~~ **56.9**	....

boilers -gas
....

Total... ~~83.5~~ **81.1**

Technical Support Document

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Total Potential and Allowable Emissions

Indiana Permit Allowable Emissions Definition (after compliance with applicable rules, based on limited soybean receiving, and processing, and limited emissions of SO_2):

Pollutant	Allowable Emissions (tons/year)	Potential Emissions (tons/year)
Particulate Matter (PM)	201	14,065
Particulate Matter (PM10)	91	6,000
Sulfur Dioxide (SO_2)	876	537
Volatile Organic Compounds (VOC)	937	937
Carbon Monoxide (CO)	155	155
Nitrogen Oxides (NO_x)	359	~~83.50~~ **81.1**
Single Hazardous Air Pollutant (HAP)	927	927
Combination of HAPs	927	927

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Source Status

New Source PSD Definition (based on 8,760 hours of operation per year at rated capacity including enforceable emission controls and soybean processing limit; and limited SO_2 emissions):

Pollutant	Emissions (ton/yr)
PM	201
PM10	91
SO_2	39.8
VOC	494
CO	155
NOx	~~83.5~~ **81.1**
H_2SO_4	0.04
Single HAP	927
Combination HAPs	927

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NOx Control

Boilers

....

(a) the two refinery (10 MMBtu/hr each), and ~~two~~ **one** reformer (20 MMBtu/hr ~~eac~~h) natural gas fired boilers shall not exceed the allowable NOx emissions of 0.0365 pounds/MMBtu heat input;

(b) the two main boilers (200MMBtu/hr each) shall not exceed the allowable NOx emissions of ~~0.0365~~ **0.0350**, and 0.087 pounds/MMBtu heat input when burning natural gas, and very low sulfur distillate oil respectively; ....

Construction Permit

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Performance Testing

7(a) That pursuant to ......Boilers HE5101 and HE5102 test for NOx - The initial performance test for NOx shall be conducted over a minimum of 24 consecutive steam generating unit operating hours at maximum heat input capacity to demonstrate compliance with the nitrogen oxides emission limit of ~~0.0365~~ **0.035** lb/MMBtu, when combusting natural gas.

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NOx BACT for Boilers and Grain Dryer

9. That pursuant to 326 IAC 2-2, ...

(a) (i) the two natural gas/distillate oil fired **main** boilers shall not exceed the allowable NOx emissions of ~~0.0365~~ **0.0350**, and 0.087 pounds per million Btu heat input, when combusting natural gas, and distillate oil respectively,.........

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Record Keeping and Reporting Requirements

34. That pursuant to 326 IAC 2-1-3(i), 326 IAC 2-2, and 40 CFR 52.21; a log of information necessary to document compliance with operation condition nos. 7, 8, 11(c), 16, 17, 18, 19, 20(c), 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, ~~and~~ 33, **and 39** shall be........

Comment (e): The application and the proposed permit fail to satisfy the requirements for pre-construction monitoring for Particulate Matter (PM) and PM-10 as required by 326 IAC 2-2-4 and 40 CFR 52.21(i).

The TSD correctly indicates that the requirement for pre-construction monitoring for PM_{10} would apply to the proposed project, since the modeled impact of 22.5 ug/m^3 (24 hour average) is greater than the air quality "DeMinimis" value of 10 ug/m^3. We disagree, however, that the use of existing data from the monitors located 15 kilometers away in Vanderburgh County are adequate to satisfy the pre-construction monitoring requirement. As indicated in the modeling analysis, the impact area for the proposed facility has a radius of 6 kilometers. The area's largest emitter for both PM10 and NOx sits adjacent to the proposed facility. If no current data or monitoring exists at the AB Brown power plant, IDEM should have required a year's worth of preconstruction monitoring for both of these pollutants.

The TSD cites EPA's "Ambient Monitoring Guidelines for Prevention of Deterioration", (EPA-450-87-007) as the basis for accepting the Vanderburgh County monitoring sites as regional sites. We believe that acceptance of the data from Vanderburgh County is clearly not supported by this guidance document. Specifically, the guidance document in Section 2.4 indicates that where existing monitoring data is used, it must be representative of three types of areas: (1) the location of maximum concentration increase from the proposed source. (2) the location of maximum air pollutant concentration from the existing sources, (3) the location(s) of the maximum impact area. The existing monitoring data from Vanderburgh County would meet none of these criteria. The guidance does provide further case- by - case examples of where the use of "Regional Sites may be acceptable, but the cases provided actually support the need to provide pre-construction monitoring data meeting the above criteria for the proposed ConAgra facility. We believe that at least one years' actual monitoring data for PM10 from a property located monitoring site is necessary to adequately assess the air quality impact and make a determination on this permit.

Response (e): Pre-construction monitoring requirements can be met with existing, representative monitoring data. If representative data is not available, higher background concentrations are used for NAAQS analysis purposes. Higher background concentrations used will limit the applicant's air quality impact from the proposed source, therefore decreasing the likelihood of the NAAQS being threatened in the area. U.S. EPA-Region V accepts Indiana's methodology for this treatment of background concentrations.

There was a PM10 monitor located approximately 2 miles west of the proposed ConAgra site from 1989 through 1991. Monitoring results indicated PM10 concentrations averaged over the three year period were 20 micrograms per cubic meter (ug/m^3) less for a 24 hour averaging period and 8 ug/m^3 less for an annual averaging period than the background data recorded over that same period at the Civic Center and 2300 Illinois Street monitors in Evansville. Therefore, the use of the Illinois street data is conservative.

Current PM10 background concentrations at the two Evansville PM10 monitors for 1995 through 1997 are 10 ug/m^3 less than the concentrations recorded at the two monitors for 1989 through 1991, so air quality is improving.

Comment (f): The increment consumption analysis for PM10 does not comply with the requirements of 326 IAC 2-2-5 & 40 CFR 52.21(c), (k), and (m).

The air quality assessment does not address whether or not the "Baseline Date" or the "Minor Source Baseline Date" have been triggered with respect to the proposed ConAgra PSD permit application. The baseline dates are established when a complete application is filed for a PSD permit for a major source or major modification for a particular pollutant for which a PSD increment has been established. For PM10, any "Minor Source Baseline Date" established originally for Total Suspended Particulate (TSP) remains in effect for the purposes of the PM10 increment consumption. The increment consumption analysis must account for the cumulative effect of all minor or major sources which have been constructed since the baseline dates. A review of IDEM files indicates that G. E. Plastics in Mount Vernon, Indiana may have triggered the baseline date with an application for a major modification in 1988. If this source or any other source triggered the baseline date then the increment consumption assessment should be re-done in a manner which indicates the impacts of all sources constructed since the baseline date. IDEM should determine whether the baseline date(s) have been triggered and ensure that the increment consumption analysis is done consistent with the requirements of the PSD rules.

In addition, the increment assessment does not appear to include fugitive emission sources or secondary emissions from ships, trains or truck traffic which would occur as a result of the proposed source. If these emission sources were included in the analysis, as required by the applicable regulations, more than 80% of the increment (or remaining increment) may be consumed by the proposed project in conflict with the requirements of 326 IAC 2-2-6.

Response (f): The minor source baseline date for Posey County was established by SIGECO A.B. Brown on January 9, 1978. IDEM maintains the PSD increment-consuming source inventory for PSD modeling analysis. As mentioned in the air quality modeling TSD, U.S. EPA has approved of a screening method in which sources which have no significant impact in a proposed source's significant impact area are removed from the NAAQS and PSD inventories.

Fugitive sources on ConAgra property were included in the NAAQS and PSD modeling analysis as well as the significant impact area modeling. These emissions included fugitives from paved roads for all vehicular traffic, loading/unloading from railcars, trucks and barges and emissions from the conveyor belt. Secondary emissions are assessed through additional impact analysis. These emissions will only have a minor impact and not contribute significantly to ambient air quality.

Comment (g) Errors in the modeling assessment under-estimate the ambient impacts from Hexane emissions. It appears that only the point source emissions were modeled. There are significant fugitive emissions (estimated by ConAgra to be over 350 tons/year) which will also be emitted, and will likely be released at lower elevations from building vents. The Hexane modeling analysis should be revised to include the impacts of from the fugitive emissions. We would also note that the Technical Support Document indicates that the PEL for Hexane is 1,800,000ug/M^3. We believe that the correct value is 180,000 ug/M^3. Given the likelihood that the impact as compared with the PEL will show a much greater potential impact, and given the fact that the PEL is designed to protect workers exposed during an eight-hour shift, as opposed to protecting the public which would be constantly exposed to levels from this plant, we would request that a detailed risk assessment be performed for the Hexane emissions from this plant.

Response (g): Fugitive emissions inside the extraction building are exhausted through 4 building vents and these emissions are accounted for in the Hexane modeling.

IDEM's Hazardous Air Pollutant (HAPs) modeling policy compares maximum 8-hour concentrations to the Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PELs) as found in 29 Code of Federal Register (CFR) Part 1910 and Part 1926.55. The latest review of this OSHA document showed the PEL for Hexane was 1800.0 milligram per cubic meter (mg/m3) which translates to 1800000.0 ug/m^3.This was the concentration the IDEM used to compare to ConAgra's impact.

Comment (h): The application and the proposed permit fail to demonstrate that the level of control of Hexane emissions represents Maximum Achievable Control Technology as required by 326 IAC 2-1-3.4.

The TSD concludes, without the benefit of any technical discussion or analysis, that the PSD BACT requirement for VOCs is adequate to satisfy the case- by-case MACT requirement under 326 IAC 2-1-3.4. We believe that this conclusion clearly lacks adequate support, particularly in view of the fact that the regulatory basis for determining BACT and MACT are fundamentally different. BACT is defined as the maximum level of control based on technical and economic feasibility. MACT, on the other hand, is the maximum degree of reduction achieved in practice by a similar source – it shall be no less stringent than that achieved by the best controlled source in the same source category as the proposed source. The application and the TSD provide no evidence of a review of control technology to identify the best controlled similar source. Absent such a technology review, it would be impossible to evaluate compliance with 326 IAC 2-1-3.4 (which incorporates 40 CFR 63.43 by reference).

Response (h): Maximum achievable control technology (MACT) emission limitation for new sources means the emission limitation which is not less stringent than the emission limitation achieved in practice by the best controlled similar source, and which reflects the maximum degree of reduction in emissions of hazardous air pollutants (including a prohibition on such emissions, where achievable) the

Commissioner taking into consideration the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements, determines is achievable by sources in the category or subcategory to which such emission standard applies.

For new sources MACT floor means the emission limitation achieved in practice by the best controlled similar source. While Clean Air Act allows Federal EPA to select the best controlled similar source (without limitation to a source within the regulated category), this source is almost always going to be found in the source category being regulated.

OAM adopts the "top-down" process to select the best available control technology for a particular source. In the top-down process, all available control technologies are ranked in descending order of effectiveness. First, the BACT analysis must include consideration of the most stringent available technologies, i. e. , those which provide the "maximum degree of emissions reductions." The most stringent available control technology is established as BACT unless this most stringent technology can not be justified based on the analysis of energy, environmental, or economic impacts. If the most stringent technology is eliminated, then the next most stringent alternative is considered, and so on. This policy is consistent with current statutory and regulatory requirements. In this case, the most stringent available control technology in terms of hexane emission rate was selected. No other similar source in other categories was found.

The IDEM researched the "MACT Floor Determinations and Emissions Reductions Required for Subcategories Recommended by the Vegetable Oil Industry Coalition" report prepared by Alpha-gamma Technologies, Inc. It was found that only four plants are achieving the 0.16 pounds of hexane usage per ton of soybean crushed, in the nation. None of the plants in the nation has hexane usage rate less than 0.16 gallons per ton. The BACT determination was made based on the lowest hexane usage rates plants i.e. the most stringent control. No other similar source was found to have lower hexane emissions. When one selects the most stringent control available, then BACT and MACT are the same. Therefore, MACT determination conforms to rule 326 IAC 2-1-3.4.

The IDEM worked with the applicant to reduce emissions. Finally the initial hexane emissions proposed by ConAgra was reduced by 30 percent. IDEM believes that it meets the criteria under Best Available Control Technology in the PSD program as well as the MACT requirement. This plant is going to have controls that are more stringent than any plant in the country. Therefore, IDEM has done a thorough MACT analysis.

Comment (i): <u>The application and the proposed permit fail to provide an adequate analysis of the impact of the proposed project on economic growth, soils, vegetation, and visibility as required by 326 IAC 2-2-7 and 40 CFR 52.21(o).</u>

We believe that there are significant assessments which have not been included in the application related to this requirement. Specifically, the application fails to assess the impact of ozone values on local vegetation, which includes commercial melon crops which are adversely affected by ozone. We believe that the impact assessment should at a minimum identify such impacts and quantify the economic impact on local agriculture.

The application also fails to adequately address the impact which the proposed project would have on economic growth due to nonattainment with the ozone standard which as discussed above would be affected by the proposed source. It is reasonable to assume that Southwestern Indiana will be designated as nonattainment under the new eight hour ozone standard, and that the level of emissions added to the area from the proposed ConAgra source would have to be offset through reductions from other existing sources. The cost impact of these reductions would be born by existing sources, and in some cases directly by the citizens of Southwestern Indiana , thereby re-directing funds which could be used for economic growth to pay for the emissions impact from the ConAgra site. Another impact of the likely designation to nonattainment would be the future imposition of the requirements of the Emission Offset Rule to new sources locating in Southwestern Indiana. The existence of the ConAgra facility would likely extend the period of time before attainment is achieved, thereby having a future negative impact on economic growth in the area.

We believe that these impacts need to be assessed and presented for public review before, IDEM issues a permit allowing the construction of this source so that the local community can make meaningful comments on the true impact of this source.

Response (i): IDEM's Technical Support Document (TSD) is meant as an overview of the review and analysis of ConAgra impacts. Criteria pollutant impacts were found to not threaten primary or secondary NAAQS standards. Analysis of impacts on soils and vegetation showed no expected impacts to adversely affect major vegetative cover types and crop lands in the area from existing conditions. Visibility analysis are typically used to determine impacts on Class I areas. Since Mammoth Caves, Kentucky is approximately 120 kilometers to the southeast of ConAgra, no air quality impact analysis is required when Class I areas are over 100 kilometers away.

Soil types in the Posey county/Vanderburgh county area are considered rahm, nolin, newark and woodmere silt loams which are considered fair to good for grain/seed crops, grasses, trees and wildlife (taken from Soil Survey of Posey County, Indiana - U.S. Department of Agriculture Conservation Service 1979) Impacts from ConAgra are not expected to affect these potential habitat rankings.

Trees found in the area include certain types of maples, oaks, elms, flowering dogwood, red bud, sycamore and many other tree types (taken from Natural Areas in Indiana and their Preservation 1969). The sensitivity of these tree types range from intermediate to tolerant of pollutants. ConAgra impacts will fall below threshold limits.

Research into the 1992 Census of Agriculture for Posey County Tables 2 and 29 shows an increase in melon farms and acreage from 1982 to 1992, (latest available data) and strong market values of those melon farms over the same period. Sensitivity studies on foliage does not suggest symptoms of foliar or leaf damage induced by higher ozone exposures in natural habitats (taken from Effects of Ozone on Forest Trees in the Southern Appalachians, Southern Appalachian Mountain Initiative (SAMI)). IDEM does not expect ConAgra's minor impacts to significantly affect crops.

The IDEM believes that the issue of the economic impact of possible delays in achieving compliance with the NAAQS for ozone and the resulting effect of being designated as nonattainment has been addressed by the permit. This document contains discussions of the overall ozone SIP process and the intended effect of the modified emission offset permit condition. Much of the responsibility for minimizing the impact of ConAgra's emissions is ConAgra's. The IDEM is obligated to develop a SIP that accommodates future growth at existing sources as well as new minor sources.

Comment (j): <u>The Technical Support Document does not clearly indicate when the application for this particular source was submitted.</u>

Our review of the file indicates that the application to construct the proposed source at the West Franklin site was submitted in December1997. The Technical Support Document indicates that the original application was submitted on May 2, 1997, but that application was for a similar source to be located in Mt. Vernon, Indiana. We request that the final Technical Support Document clearly indicate that the application for this site was submitted in December 1997.

Response (j): That is correct for this site. However, technical work was begun before December 18, 1997 based on the earlier application submitted on May 2, 1997.

The OAM prefers that the Technical Support Document reflect the permit that was on public notice. Changes to the technical support material that occur after the public notice are documented in this Addendum to the Technical Support Document. This accomplishes the desired result of ensuring that these types of concerns are documented and part of the record regarding the permit decision.

The revised statement on Page 1 of 16 of the Technical Support Document (TSD) reads as follows:

An application for the purposes of this review was received on ~~May 2~~, **December 18**, 1997, with additional information received on ~~June 18; August 14, 27; September 3, 4, 27; October 8, 14, 15, 17, 20;~~ December ~~18,~~ 22, 31, 1997; and January 30, February 16, 17, 19, 24, and 25, 1998. **The OAM began technical work based on the earlier application received on May 2, 1997.**

Comment 16. Mr. John Blair (Valley Watch, Inc.)

Comment (a): Mr. John Blair claims that IDEM relies entirely on data submitted by the applicant with no independent verification that the data is accurate. He states that the ConAgra's consultant, GAI, is a questionable source of information throughout the facility's permitting process.

Response (a): The IDEM typically works very closely with applicants for major source permits to ensure that the application will properly address all applicable requirements. While ConAgra does provide its general design of the plant, the regulatory requirements are provided by, or independently verified by IDEM. The IDEM provides information to the applicant on how to properly perform the analyses of Best Available Control Technology and impacts on air quality.

The BACT analysis is critically reviewed by the IDEM by comparing the applicants emission levels to those established at similar sources across the country. In this case information became available during the course of reviewing the application that lowered the overall BACT limit for VOC by some 30%. The emissions information becomes enforceable emission limitations and the permit provides the means for ensuring compliance with those limits.

The air quality analyses are performed with EPA-approved models in accordance with EPA modeling procedures. The meteorological and ambient air quality data used in the analyses are provided to the applicant by IDEM. As part of IDEM's review of the applicant's air quality analyses, the modeling is independently performed by IDEM staff to verify the results.

Comment (b): IDEM's use of the one hour ozone standard for comparison of modeled data from the site should not be allowed since the one hour standard is no longer in effect for the region. The eight-hour standard of 85 ppb should be used instead.

Table 7 in the Air Quality Analysis clearly shows that model parameters suggested by IDEM to be valid would cause a severe violation of the eight-hour ozone standard with eight hours in a row above the level of 100 ppb on June 25, 1991.

IDEM claims that meteorological data is not available from National Weather Service. It is suggested that not only should the model be done for the eight hour standard on August 15, 1994 but also for July 12, 1995 since that was the most recent day when ozone levels reached their peak at monitors throughout the region.

Response (b): On May 27, 1998, U.S. EPA revoked the 1-hour ozone standard. However, all available screening tools to date still model impacts of the 1-hour ozone standard. The predicted 8-hour concentrations would be lower than 1- hour. It is not IDEM's intention to bend or manipulate data in any way. IDEM relies on the best screening tool available to determine ozone impacts. IDEM is following EPA's development of guidance on any new screening techniques to determine single source 8-hour ozone impacts and will implement these techniques when they are made available.

The data which was not available for the August 15, 1994 and July 12, 1995, high ozone days, is the ambient VOC concentrations for input into the model as it relates to the surface and upper air meteorological conditions for that day. IDEM used the meteorological and ambient VOC concentrations from a representative ozone episode in order to recreate ozone conducive conditions. Actual meteorological data for those days was used in the analysis..

Comment (c): There is no discussion in the analysis as to where is the maximum impact of hexane. In this case, people live very close to the proposed plant with some people having domiciles within yards of the processing plant itself. In every direction except to the south residential development exists. IDEM needs to spell out precisely what parameters were used in ISCST3 model and justify the modeling results with the understanding that people live so near to the proposed site.

Response (c): The predicted maximum hexane impact is right on the property line on the east and west of the plant. The points of maximum hexane impacts are shown in the enclosed map “ConAgra - HAPs Impact Analysis”.

Hexane PEL is taken from the Occupational Safety and Health Association (OSHA). Research on the latest update from 29 Code of Federal Register (CFR) Part 1926 showed that Hexane PEL remains at 1,800,000 micrograms per cubic meter.

It should be noted the technical support document is a brief overview of the IDEM’s modeling analysis and its purpose is to give a general view to the public of what is involved in a PSD modeling analysis. Analysis of the Hexane emissions followed all IDEM-Office of Air Management Air Quality Modeling Guidelines. Receptors are placed around the facility to determine the impacts from ConAgra and compared to the OSHA PEL for Hexane. Results showed impacts were 0.11% of what OSHA deems safe for workers at 8-hour exposures. Maximum impacts were measured at the west side of ConAgra’s property line. Ambient monitoring will be placed near the maximum impact area for Hexane.

Comment (d): GAI has shown itself to be a questionable resource for information throughout this facility’s permitting process. A good example of this is their US Army Corps of Engineer’s permit application under section 404 of the Clean Water Act and the Rivers and Harbor’s Act of 1899. In that application GAI and ConAgra indicated that the plant will be built to an elevation of 372 feet. That would leave the plant more than 1.5 feet under at the level of the 100-year flood. It seems to us that a conscientious engineering firm would at least check on the level of the 100-year flood prior to seeking application to build a multi million dollar processing plant.

Response (d): The IDEM believes that these concerns were adequately addressed by the U.S. Army Corps of Engineers..

Comment (e): IDEM has done a poor job of analyzing the total impact of the facility since there is no real discussion of the impact of substantial increased truck and auto traffic to and from the plant. The addition of so much traffic will create large volumes of VOC, NOx, and particulate matter, including PM_{10}.

Response (e): These types of analysis are generally focused on Class I areas. Mammoth Caves in Kentucky is located approximately 120 kilometers to the southeast of ConAgra and a Class I analysis is not required. Analysis of soils and vegetation in the area is based on modeled impacts and emission estimates using conservative emission factors. While estimates indicate emissions will occur as a result of increased vehicular traffic, these emissions occur over a large area and impacts will be minor.

Comment 17. Mr. David Coker (Save Our Land and Environment)

ConAgra has not fared very well in the report "Corporate Report Card", posting a D for environmental issues and an F for workplace considerations. This report also said that ConAgra 's toxic substance release was highest in the food industry and almost ten times worse than the industrial average. Thanks to the Beatrice merger, ConAgra is now a potential responsible party at some 42 superfund sites all across the country.

According to OSHA, it went 26 health and safety inspections from 1994 to 1996. The company was fined $267,575 as a result of its violations, an average of over $10,000 per inspection. The average fine in similar industries is just over $1,500.

In 1996 during a major restructuring, ConAgra closed nine plants and businesses in 22 states resulting in a loss of some 6,300 jobs or seven percent of its total workforce.

Response 17. IDEM does not have specific legal authority to address the various issues raised by Mr. Coker during the new source permitting process. The IDEM takes many factors into account when determining the frequency of inspections and other compliance-related activities that will be directed towards a specific source. This permit includes a number of provisions that assist in monitoring day-to-day compliance with air pollution control requirements. The IDEM directs substantial compliance-related activities at large, new sources. These includes comprehensive inspections and emissions testing. When violations of air pollution requirements are discovered, timely and appropriate enforcement actions are taken.

Comment 18. United States Environmental Protection Agency (U.S. EPA)

(a) This source category was subject to New Source Performance Standards (NSPS) as of August 7, 1980. Therefore the source should include fugitive emissions for all criteria pollutants to determine whether the source is a major source for the purposes of PSD. Therefore, the amount of VOCs in the source category should be changed to 937 tons per year instead of 494 tons per year.

(b) The Operation Condition 38: The new program should be devised to receive applications from the sources providing the offsets in order to track these sources, the shutdowns, and the offsets. Also, we need to secure a time line to make sure all offsets are received by summer.

(c) The sulfur content in the backup fuel should be limited to 0.3% by weight.

(d) When will the Preventive Maintenance Plan be submitted by the applicant?

(e) In the leak detection section, there is no discussion of the events when the leak can not be fixed for some reasons.

(f) There should be control parameters for measuring liquid to gas ratio, and flow rate of the mineral oil absorber.

(g) Does the NSPS require periodic monitoring by an employee, once an hour or so, if the continuous monitoring system has a breakdown or repair?

(h) A plan for road wetting says as needed. The opacity limits should be established to determine when to wet the road.

Response 18.

(a) The OAM prefers that the Technical Support Document reflect the permit that was on public notice. Changes to the technical support material that occur after the public notice are documented in this Addendum to the Technical Support Document. This accomplishes the desired result of ensuring that these types of concerns are documented and part of the record regarding the permit decision.

The IDEM is working with the U.S. EPA to clarify this applicability issue. It is a moot point in this case since PSD applies to ConAgra in either case. All VOC emissions have been addressed in both the BACT and air quality analysis.

(b) When the sources enter into agreement with ConAgra to provide the emissions reductions, their permits will be amended so that the emissions reductions will be enforceable.

(c) Operation Condition No. 28 limits on the distillate oil use is based on a maximum sulfur content of 0.3% by weight.

(d) The Preventive Maintenance Plan will be developed and submitted by the applicant to IDEM before the initial compliance tests.

(e) Operation Condition No. 22(b)(ii) states the procedure for the circumstance where the leak can not be fixed.

(f) Operation Condition 25 requires the monitoring and recording of the mineral oil flow rate, mineral oil temperature, and the hexane concentration in the vent gas. The air flow rate can not be measured accurately with the instruments available. The temperature of the mineral oil is monitored which will keep the gas to liquid ratio constant.

(g) 40 CFR 60.48b(c) (NSPS) exempts the monitoring and recording of data during monitoring system breakdowns and repairs.

(h) Operation Condition 33(a) states that if fugitive dust is visible crossing the boundary or property line of the source, the source is in violation of this fugitive dust rule. All roads are paved.

Comment 19. Mr. Chris Kinnet (Southwestern Indiana Development Council (SWIDC))

We are pleased to learn that ConAgra will be among the first in Indiana to conform to the new MACT standards. It is hoped that their example is followed by existing companies in the area to reduce emissions and place new technology emission controls for the environment.

We are assured that IDEM is working for the continued growth of the area and will be vigilant in "reasonable" controls and continued job growth.

Response 19. The IDEM appreciates the interest expressed in the permit program.

Comment 20. Mr. Jeff Stratton (The National City Bank of Evansville) and Mr. J. Michael Ashworth

ConAgra has stated they will utilize the most advanced technology available to minimize emissions.

ConAgra will meet the most stringent standard for emissions in the industry, just 0.16 gallons of hexane per ton of soybeans processed.

Their testing, using Federal EPA and IDEM models, indicates the emissions from the processing plant will be within the standards set by IDEM.

Response 20. The IDEM appreciates the interest expressed in the permit program.

Comment 21. Mr. John Bittner, a farmer

It is my hope that competent people in the Department of Environmental Management and ConAgra can attain an acceptable permit for the construction of this permit.

Response 21. The IDEM appreciates the interest expressed in the permit program.

Comment 22. Mr. John C. Schwartz (The Voices for I-69)

ConAgra has demonstrated by their actions that our environment can be protected through a stated objective to do so at the initial stages of engineering design. By investing in a facility that sets such a high environmental standards, ConAgra will join a growing list of food processors that will build a strong Southwestern Indiana.

Response 22. The IDEM appreciates the interest expressed in the permit program.

Comment 23. Mr. Thomas Utter (Lincolnland Economic Development Corporation)

I strongly support ConAgra's air permit application and trust the technology of this company and its stated goal of exceeding air quality standards.

Response 23. The IDEM appreciates the interest expressed in the permit program.

Comment 24. Mr. Jim Spinney (Posey County Farm Bureau)

Our association representing agriculture in Posey and surrounding counties feel confident that this facility will use the Best Available Control Technology and with its importance to the future of this area should be pushed ahead to approval as rapidly as possible.

Response 24. The IDEM appreciates the interest expressed in the permit program.

Comment 25. Mr. Mr. Robert L. Quick (Metropolitan Evansville Chamber of Commerce)

It is my understanding that the ConAgra plant will be among the first of its kind to conform to the new MACT standards. I also understand ConAgra is willing to employ other air quality measures such as monitoring and offsets, if required. On completion, it will stand as a premier example of the new standards both regionally and nationally.

Response 25. The IDEM appreciates the interest expressed in the permit program.

Comment 26. Mr. Bud Farmer (Port Commissioner for the State of Indiana)

ConAgra has more than met the standards set by IDEM. The parameters, which the IDEM has lined up, are very strict.

Response 26. The IDEM appreciates the interest expressed in the permit program.

Comment 27. Mr. David Ries (Ries Farms of Mt. Vernon)

ConAgra plant will be located in the center of the soybean growing areas. There will be less transportation distances to be covered and thus will have less pollution.

Response 27. The IDEM appreciates the interest expressed in the permit program.

Comment 28. Mr. Steve Bennet (Old National Bank & Mt. Vernon Industrial Foundation)

I am certainly no technical expert, but I have read that IDEM has crafted a permit which is the strictest of any of its kind within the United States for this sort of facility. This satisfies me, and I urge IDEM to approve the air permit.

Response 28. The IDEM appreciates the interest expressed in the permit program.

Comment 29. Ms. Nancy Burns (Mt. Vernon Chamber of Commerce & IDEM's Regional Ozone Group)

I am fully aware of the steps that may be necessary to keep southwest Indiana in attainment status. I believe that ConAgra and IDEM have reached a balance that will preserve our air quality and still allow for economic growth which provides good family wage jobs for Posey County. I further see that ConAgra's use of the new MACT2000 professional standards as a commitment to the area. I respectfully request an early approval of their permit.

Response 29. The IDEM appreciates the interest expressed in the permit program.

Comment 30. Mrs. Ann Scarafia (Posey County Community Foundation)

ConAgra is a good corporate citizen. When they first made the decision to come to Posey County, they looked around for a receiver for a donation they wanted to make their new community. The Posey County Community Foundation was selected because the mission of the organization is to make the entire community a better place to live. This is the only corporate endowment that our foundation has received in six years of existence.

Response 30. The IDEM appreciates the interest expressed in the permit program.

Comment 31. Mr. Randy Brown (Southwestern Indiana Building and Construction Trade & Plumbers and Pipefitters Union in Evansville)

We are concerned, naturally, about the jobs that people have reported. That is not our only concern. Our concern also is the environment that we are going to live in after these jobs have come and gone for the construction workers. we have looked at this issue with ConAgra. We have found ConAgra willing to sit down and talk with us. We have also some people that represented us to look into the environmental aspect.

We hope that you will issue a permit for this so we can get started on the construction.

Response 31. The IDEM appreciates the interest expressed in the permit program.

Comment 32. Mr. Keneth Robinson (The Evansville Regional Economic Development Corporation a.k.a., Vision 2000)

The Evansville Regional Economic Development Corporation a.k.a., Vision 2000) supports ConAgra's application for an Air Permit for its proposed Posey County plant.

Response 32. The IDEM appreciates the interest expressed in the permit program.

Comment 33. Mr. Donald Horning (Countrymark Cooperative, Inc.)

It is our understanding that ConAgra's plant is being held to the highest environmental standards (MACT 2000) ever proposed for this type of plant. ConAgra is also willing to employ other air quality monitoring or offsets as required in the future. As you know, all industry is facing increasingly severe environmental oversight. Several Posey County industries with VOC sources (including our own refinery) are being mandated to reduce overall emissions irrespective of the proposed ConAgra plant. Some of these reductions will come as early as this fall. The proposed ConAgra plant will therefore have a much reduced overall net impact than previously discussed.

Response 33. The IDEM appreciates the interest expressed in the permit program.

Comment 34. Mr. Gary L. Gentry (Warick County Economic Development Department)

I am aware that the ConAgra facility will be held to the highest standard in terms of emissions and will be among the most friendly industries in the region.

IDEM should be commended for its work on this air permit. You have managed to create a solution that puts the interest of the community before industry, yet still allows for industry growth.

Response 34. The IDEM appreciates the interest expressed in the permit program.

Comment 35. Ms. Eldon Elder

Air standards created by this air permit is not going to affect Posey county greatly or the county next to us. The wind in this part of the country carries that pollution and it's dissipated over several states, not just this states, not just in the next county. In fact, the next county don't even receive hardly any of it because it flies right on over.

Response 35. The IDEM appreciates the interest expressed in the permit program.

The OAM has determined that the following additions, and modifications of Operation Conditions are necessary.

1. Main Plant Boilers Opacity Limitation

20. That

(a) pursuant to 40 CFR 60.43b (f), and 326 IAC 12, on and after the date on which the initial performance test is completed or required to be completed under 40 CFR 60.8, whichever date comes first, the owner or operator of the main plant boilers shall not cause to be discharged into the atmosphere from the main plant boilers, any gases that exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity. The opacity standards apply at all times, except during period of startup, shutdown, or malfunction.

(b) pursuant to 326 IAC 12, and 40 CFR 60.48b (a), Subpart Db,

(i) the owner or operator shall install, calibrate, maintain, and operate a continuous monitoring system for measuring the opacity of emissions discharged to the atmosphere from the two main plant boilers, and record the output of the system;

(ii) the continuous monitoring system shall be operated and data recorded during all periods of operation of the two main plant boilers except for continuous monitoring system breakdowns and repairs. Data shall be recorded during calibration checks, and zero and span adjustments;

(iii) the procedures under 40 CFR 60.13 shall be followed for installation, evaluation, and operation of the continuous monitoring systems;and

(c) pursuant to 326 IAC 12, and 40 CFR 60.49b(f), Subpart Db, the owner or operator shall report and keep records as required in 40 CFR 60.49b.

2.	Operation Condition 28 (b)	the hours of operation of the emergency generator shall be limited to 52 hours per year, **and the sulfur content in the diesel fuel shall be limited to 0.3%; and**
3	Operation Condition 7(b)	That pursuant to 326 IAC ~~3-2.1~~ **3-6** (Construction and Operating Permit Requirements), ...
4	Operation Condition 16	That pursuant to 40 CFR 60.49b(r), and 326 IAC 12, compliance with the emission limits or fuel oil sulfur limits in operation condition ~~14~~**15**....
5.	Operation Condition 7(a)	That pursuant to 40 CFR 60, Subpart DD, and 40 CFR 60, subpart Db,............. Main plant boilers (HE5101 ~~or~~ **and** HE5102) NOx Boilers HE5101~~or~~ **and** HE5102 test for NOx ....
6.	Operation Condition 35(a)	The Permittee shall establish an air quality monitoring program to measure ambient concentrations of particulate matter **less than 10 microns**, and hexane. The program shall include two sites for measuring air pollutants near the locations of maximum predicted impact. **The Permittee shall take 24-hour samples every sixth day for PM10, and Hexane.** **Ambient monitoring for Hexane shall commence at least six months prior to commencement of plant operation. PM10 monitoring shall commence prior to commencement of plant operation.**
7.	Operation Condition 27(a)	the soybean for extraction purpose, and the grain for loadout without processing, received by the plant, shall be limited to 2,552,912 **tons** at 12.5% moisture and 6 % of hull or equivalent, and

Appendix B

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (scfm)	Temperature (^0F)
DF1	Receiving area baghouse (DF-1)	55	2.5	15,000	70
DF2	Receiving area baghouse (DF-2)	55	1.7	7,000	70
DF3	Receiving area baghouse (DF-3)	55	1.7	7,000	70
DF4	Barge receiving system baghouse (DF-4)	55	1.2	3,450	70
DF5	Barge loading baghouse (DF-5)	35	1.7	6,650	70
DF6	Barge receiving area baghouse (DF-6)	60	2.1	10,700	70
DF7A	Elevator screening baghouse	189	1.5	5,200	70
DF7B	Transfer #1 baghouse	189	1.7	6,500	70
DF7C	Transfer #2 baghouse	189	1.7	6,500	70
DF7D	Transfer #3 baghouse	189	1.7	6,500	70
DF8	Steel tank baghouse (DF-8)		0.79	1,500	70
DF9	Steel tank baghouse (DF-9)		0.79	1,500	70

DF10	Steel tank baghouse		0.79	1,500	70
DF11	Steel tank baghouse		0.79	1,500	70
DF12	Grain reclaim system #1 baghouse	20	1.9	8,500	70
DF13	Grain reclaim system #2 baghouse	20	1.5	5,500	70
DF15	Grain dryer stack	82	6	273,060	115
BL2020	Hot dehulling	150	7.0	84,517	140
FL20803	Flake vacuum baghouse	110	1.1	1,500	70
FL20802	Bean screening surge bin baghouse	110	1.1	1,500	70
FL20305	Pod grinding receiver baghouse	110	1.1	1,500	70
FL20401	Flaker baghouse	110	3.0	35,000	142
Extractor vent fan	Extractor seal conveyor	75	0.5	200	140
CY30301	DTDC dryer #1	115	3.0	28,400	177
CY30302	DTDC dryer #2	115	2.0	22,600	140
CY30303	DTDC dryer #3	115	2.0	22,600	132
CY30304	DTDC dryer #4	115	2.0	20,800	119
CY30305	DTDC dryer #5	115	2.0	20,800	119
CY30306	DTDC cooler	115	2.0	19,700	101

FL20501	Meal sizing and storage baghouse	110	3.0	34,000	120
FL20601	Meal load out conveyors # 1 baghouse			6,000	70
FL20602	Meal load out conveyors # 2 baghouse			6,000	70
FL20603	Meal car vacuum baghouse	55	0.9	1,800	70
FL20605	Kaolin bin baghouse	105	0.9	1,800	70
DF18A	Rail and barge meal/grain/hull loadout baghouse			29,000	70
DF18B	Truck meal/grain/hull loadout baghouse			28,500	70
FL20801	Hull grinder surge bin filter	110	1.8	8,000	80
FL20903	Hull load out system filter	110	2.0	20,000	80
CY20901	Pellet cooler cyclone	110	2.4	14,000	160
CY41501	Granulated lecithin baghouse	65	1.3	4,000	120
DE Silo TK41702	DE silo baghouse	100	0.9	1,870	70
ME50304	Perlite/DE day bulk bag unloader	42	14		70

ME50101	Silica bulk bag unloading	42	14		70
ME50201	Perlite/DE day bulk bag unloader	42	14		70
ME50202	Carbon bulk bag unloader	42	14		70
ME50301	Perlite/DE day bulk bag unloader	42	14		70
ME50303A	Nickel catalyst bag unloading	42	14		70
ME50303B	Nickel catalyst bag unloading	42	14		70
TK51104	Bleaching clay silo	75	0.9	1,870	70
ME51101	Citric acid bulk bag unloader	42	14		70
ME50305	DE bulk bag unloading				70
ME52401	DE bulk bag unloading				70
ME52301	DE bulk bag unloading				70
TK50902	Refinery sulfuric acid tank	16	0.5	30.75	70
TK31205	Crush sulfuric acid tank	16	0.5	30.75	70
TW30501	Mineral oil absorber	75	0.4	450	72
SC50901	Acidulation tanks scrubber	44	1.5	5,318	80
Refinery hot well	Refinery hot well	5	4.5		212

Single stack HE5101&5102	Main plant boilers # 1 & 2 (HE5101 & 5102)	120	10	135,000	335
ME5001A	Refinery boilers # 1 (ME-5001A)	75	2.4	7,626	450
ME5001B	Refinery boilers # 2 (ME-5001 B)	75	2.4	7,626	450
Reformer Boiler	Reformer boiler	50	2.2	6,920	355
MO5001	Firewater pump diesel engine (MO-5001)	20.0	0.42	3,177	779

APPENDIX C
Air Quality Analysis

Introduction

ConAgra Soybean Processing Company (ConAgra) has applied for a Prevention of Significant Deterioration (PSD) permit to construct an integrated soybean processing and grain merchandising plant near West Franklin, Posey County, Indiana. Posey County is designated as attainment for all criteria pollutants. The site is located at Universal Transverse Mercator (UTM) coordinates 435662.9 East and 4194532.0 North. ConAgra's proposed facility will consist of an elevator grain dryer system fueled by natural gas, preparation plant, dehulling system, expander, dryer/cooler and hexane oil extraction processes, distillation system, desolventizer toaster section, Lecithin and refinery processes and five boilers (2 natural gas or #2 fuel oil-fired and three natural gas-fired only).

ConAgra Soybean Processing Company (ConAgra) has applied for a Prevention of Significant Deterioration (PSD) permit to construct an integrated soybean processing and grain merchandising plant in Marrs Township near West Franklin, Posey County, Indiana. Posey County is designated as attainment for all criteria pollutants. The site is located at Universal Transverse Mercator (UTM) coordinates 435662.9 East and 4194532.0 North. ConAgra's proposed plant will consist of an elevator grain dryer system fueled by natural gas, preparation plant, dehulling system, expander, dryer/cooler and hexane oil extraction processes, distillation system, desolventizer toaster section, Lecithin and refinery processes and five boilers (2 natural gas or #2 fuel oil-fired and three natural gas-fired only).

GAI Consultants, Inc. prepared the PSD permit application for ConAgra. This document provides the Air Quality Modeling Section's review of the PSD application including an air quality analysis performed by the OAM. The air quality impact analysis portion of the PSD permit application will accomplish the following objectives:

A. Establish which pollutants require an air quality analysis.

B. Determine the significant ambient air impact area of the source's emissions and provide analysis of actual stack height with respect to Good Engineering Practice (GEP).

C. Demonstrate that the source will not cause or contribute to a violation of the National Ambient Air Quality Standard (NAAQS) or Prevention of Significant Deterioration (PSD) increment.

D. Perform analysis of any air toxic compound for health risk factor on general population.

E. Perform a qualitative analysis of the source's impact on general growth, soils, vegetation and visibility in the impact area with emphasis on any Class I areas. The nearest Class I area is Kentucky's Mammoth Cave National Park, over 100 kilometers from the proposed soybean processing facility in Posey County, Indiana.

Executive Summary

ConAgra has applied for a PSD construction permit to construct a soybean processing facility near West Franklin, Posey County, Indiana. The PSD application was prepared by GAI Consultants Inc. in Fort Wayne, Indiana. Posey County is designated as attainment for all criteria pollutants. PM_{10}, NO_2 and CO emission rates associated with the proposed facility exceeded their respective significant emission rates. Modeling results taken from the latest version of the ISC3 model showed PM_{10}, SO_2 and NO_2 impacts were predicted to be greater than their respective significant impact increments. SO_2 emissions were modeled although emission were below significant emission increments and the results showed ConAgra impacts had significant impact increments for the 3 and 24-hour time-averaged periods. Refined modeling for PM_{10}, SO_2 and NO_2 showed no violations of the NAAQS.

Reactive Plume Model-IV (RPM-IV) was used to model the VOC and NOx emissions for ozone impact and no significant impact was determined. Results from the PSD increment modeling for the proposed facility showed no incremental consumption above 80% of the PSD increment for PM_{10} SO_2 or NO_2. Air toxic analysis, using the ISCST3 model, indicated that Hexane will be less than 0.5% of its PEL. There was no significant impact on the nearest Class I area, which is Mammoth Cave National Park in Kentucky. Additional impact analysis showed no significant impact on economic growth, soils, vegetation or visibility in the area surrounding the proposed soybean processing facility.

Part A

Pollutants Analyzed for Air Quality Impact

326 IAC 2-2 PSD requirements apply in attainment and unclassifiable areas and require an air quality impact analysis of each regulated pollutant emitted in significant amounts by a major stationary source or modification. Significant emission levels for each pollutant are defined in 326 IAC 2-2-1. Nitrogen Dioxide (NO_2), Sulfur Dioxide (SO_2), Carbon Monoxide (CO), Particulate Matter less than 10 microns (PM_{10}), Sulfuric Acid Mist and Volatile Organic Compounds (VOCs) will be emitted from the proposed soybean processing plant. An air quality analysis is required for NO_2, CO and PM_{10}, which exceeded their respective significant emission rates as shown in Table 1:

TABLE 1- Significant Emission Rates

Pollutant	Emission Rate (tons/yr)	Significant Emission Rates (tons/yr)
PM_{10}	91.0	15.0
NO_2	83.6	40.0
CO	155.0	100.0
SO_2	39.8	40.0
Sulfuric Acid Mist	0.04	7.0
VOC	937.0	40.0

Part B

Significant Impact Area

Air quality analysis was performed to determine the significant ambient air impact area of ConAgra's emissions. Maximum modeled concentrations for each pollutant over its significant emission rate are listed below in Table 2. PM_{10} emissions are based on worst-case material handling scenarios, including both truck/rail material handling as well as river barge receiving and loadouts.

TABLE 2 - Significant Impact Analysis			
Pollutant	Time Averaging Period	Maximum Modeled Impacts (ug/m^3)	PSD Significant Impacts Levels (ug/m^3)
NO_2	Annual	1.7	1.0
PM_{10}	24 hour	22.5	5.0
PM_{10}	Annual	3.3	1.0
CO	1 hour	162.1	2000.0
CO	8 hour	47.9	500.0
SO_2	3 hour	28.7	25.0
SO_2	24 hour	6.2	5.0
SO_2	Annual	0.6	1.0
Ozone	1 hour	1.0 ppb	3.0 ppb

PM_{10}, SO_2 and NO_2 refined modeling will be required since maximum concen-trations are above PSD significant impact levels. The highest predicted impacts, based on the modeling results, indicated the PM_{10} significant impact area (SIA) was at a 6.0 kilometer radius from the proposed soybean processing plant and the NO_2 SIA was at a 1.0 kilometer radius. SO_2 emissions were modeled to determine if SO_2 concentrations from ConAgra would be below the PSD significant impact levels of 25.0 ug/m3 for 3 hour, 5.0 ug/m3 for 24 hour and 1.0 ug/m3 for annual time averaged periods. Results showed maximum concen-trations were slightly above these levels and an SO_2 analysis was required.

Pre-Construction Monitoring

Modeling results indicate that of the pollutants which exceeded signif-icant emission rates, PM_{10} impacts were above pre-construction monitoring deminimus levels specified in 326 IAC 2-2. Table 3 shows the results of the pre-construction monitoring analysis.

TABLE 3 - Pre-construction Monitoring Analysis (ug/m^3)			
Pollutant	Time Averaging Period	Maximum Modeled Concentration	Deminimus Value
PM_{10}	24 hour	22.5	10.0
NO_2	Annual	1.7	14.0
SO_2	24 hour	6.2	13.0

ConAgra has satisfied the pre-construction monitoring requirement for PM_{10}. There is existing air quality monitoring data representative of the area for PM_{10} at the 2300 West Illinois Street monitor and for NO_2 at the 425 West Mill Road monitor, both in Evansville in Vanderburgh County.

Although these monitors are approximately 15 kilometers from the proposed facility, they are considered to be conservative ambient air quality estimates of Posey County. EPA's "Ambient Monitoring Guidelines for Prevention of Significant Deterioration" (EPA-450/4-87-007) Section 2.4.1 was cited to approve of the regional monitoring sites for this. SO_2 monitor is located on Darnellsch Road in Posey County, approximately 1 kilometer from ConAgra.

Background Concentrations

Background concentrations for use in the NAAQS analysis were required since the results of the modeling for PM_{10}, SO_2 and NO_2 exceeded their respective significant impact increments. The closest PM_{10} monitoring site to ConAgra is located at 2300 West Illinois Street in Evansville and for NO_2 is the 425 West Mill Road monitor in Evansville. SO_2 monitoring data was taken from the Darnellsch Rd. monitor in Posey County. Background concentrations are listed below in Table 4.

TABLE 4 - Background Concentrations (ug/m^3)

Pollutant	Time-Averaging Period	Monitored Concentrations
NO_2	Annual	28.2
PM_{10}	Annual	33.0
PM_{10}	Average 2nd high 24 hour	59.7
SO_2	Average 2nd high 3 hour	277.7
SO_2	Average 2nd high 24 hour	108.4
SO_2	Annual	31.4
Ozone	Maximum 1 hour	118 ppb

Part C

Analysis of Source Impact on NAAQS and PSD Increment

The Office of Air Management modeling used the U.S. EPA approved Industrial Source Complex Short Term (ISCST3) model, Version 3, dated 96113 for PM_{10} and SO_2 emissions. This version utilizes the Schulman-Scire algorithm to account for building downwash effects. Stacks associated with the proposed facility are below Good Engineering Practice (GEP) stack heights. The aerodynamic downwash parameters were calculated using U.S. EPA's Building Profile Input Program (BPIP). The ISC Long Term (ISCLT3) model, Version 3, dated 96113, was used for NO_2 emissions. OAM modeling utilized receptor grids out to 7 kilometers and discrete receptors were placed 100 meters apart on ConAgra's property lines. Modeling was performed for PM_{10}, SO_2 and NO_2 using the emission rates listed in Appendix C of the PSD application.

The meteorological data used in the ISCST3 model consisted of surface data from the Evansville, Indiana National Weather Service station merged with the mixing heights from Peoria, Illinois Airport for the five-year period (1987-1991). The meteorological data was obtained from the U.S. EPA Support Center for Regulatory Air Model electronic Bulletin Board and processed by PCRAMMET. The ISCLT3 meteorological data consists of joint frequencies of six wind speeds, sixteen wind directions and six stability categories compiled into a meteorological file. Average surface temperatures and mixing heights were determined from the Evansville, Indiana National Weather Service station and were included in the NO_2 input files.

NAAQS Compliance Analysis and Results

Emission inventories of PM_{10}, SO_2 and NO_2 sources within a 50-kilometer radius of the proposed soybean processing facility were supplied to the consultants by the Aerometric Information Retrieval System (AIRS). IDEM approved a screening method, using the ISCST3 model, to eliminate PM_{10}, SO_2 and NO_2 NAAQS sources that had no significant impact in ConAgra's significant impact area for PM_{10}, SO_2 or NO_2. This method modeled PM_{10}, SO_2 and NO_2 NAAQS sources in the 50-kilometer radius from the proposed facility. Any source that modeled less than the significant impact increment in the significant impact area of the proposed soybean processing facility was eliminated from the NAAQS inventory. Sources which did not screen out of the NAAQS inventory were included in the PM_{10}, SO_2 and NO_2 refined air quality modeling.

NAAQS modeling for PM_{10}, SO_2 and NO_2 was conducted to compare to their respective NAAQS limits. OAM modeling results are shown in Table 5. All maximum concentrations of PM_{10}, SO_2 and NO_2 for each time-averaged period were below NAAQS limits and further modeling was not required.

TABLE 5- NAAQS Analysis

Poll.	Year	Time-Averaged Period	Maximum Concentration (ug/m^3)	Background Concentration (ug/m^3)	Total (ug/m^3)	NAAQS (ug/m^3)
NO_2	1989	Annual	5.9	28.2	34.1	100.0
PM_{10}	1990	highest 2nd high 24 hour	23.0	59.7	82.7	150.0
PM_{10}	1991	Annual	4.6	33.0	37.6	50.0
SO_2	1987	highest 2nd high 3 hour	326.4	277.7	604.1	1300.0
SO_2	1989	highest 2nd high 24 hour	88.3	108.4	196.7	365.0
SO_2	1989	Annual	7.8	31.4	39.2	80.0

Part D

RPM-IV Inputs for Ambient and Plume-injected VOC Modes for NAAQS Analysis

The Office of Air Management modeling utilized RPM-IV in order to predict ozone impacts from the facility. RPM-IV is a photochemical plume-segment model that simulates a photochemical plume by representing the plume as a series of cells across the horizon of the plume. RPM-IV consists of a Lagrangian model that follows a parcel of air pollutants as it travels downwind from a point source. Simulation of ambient air and resulting chemical transformations in a plume occur within the model to best represent actual conditions in the atmosphere.

The RPM-IV model was run in two modes; the first mode determined ambient conditions for a day when high ozone concentrations were recorded. The second mode injects the VOC plume from the new source into the ambient mode. The second mode contains both ambient and plume-injected concentrations. The concentration from the second mode is subtracted from the first mode at down-wind distances specified by certain time intervals and the difference between the two modes is the source's impact. Source impact less than 3 ppb is not considered significant and not subject to further analysis.

The initial conditions were obtained from the Lake Michigan Air Directors Consortium (LADCO). OAM approves of the initial conditions which will most represent an ozone episode. Meteorological conditions were taken from the Evansville, Indiana National Weather Service station for June 25, 1991. Conservative ozone monitoring data was taken from Vanderburgh County at the Old State Road monitor. This monitor is located approximately 15 kilo-meters northeast of the proposed facility. The highest ozone concentration for the latest three-year period (1994 - 1996) was 118 ppb, recorded on August 15, 1994 at the Old State Road ozone monitor in Vanderburgh County. Meteo-rological data is not currently available for that day, so June 25, 1991 meteorological data was used as a comparable episodic day. Complete species information was recorded by LADCO aircraft for June 25, 1991 in which an ozone episode occurred. This information was used to establish ambient boundary conditions to input into the RPM-IV model and are listed below in Table 6:

TABLE 6 - Ambient Species Initial Concentration (ppb)

CHEMICAL SPECIES	Initial Concentration	CHEMICAL SPECIES	Initial Concentration
Nitrogen Dioxide (NO2)	10.0	Toluene (TOL)	0.653
Nitric Oxide (NO)	0.1	Xylene (XYL)	0.164
Ozone (O3)	23.0	(H2O2)	0.01
Carbon Monoxide (CO)	200.0	(HNO2)	0.01
Peroxy Acetyl Nitrate (PAN)	10.0	(PNA)	0.01
Olefins (OLE)	0.273	(HNO3)	10.0
Paraffins (PAR)	13.0	(CRES)	0.01
Ethene (ETH)	0.08	(OPEN)	0.01
Aldehyde (ALD2)	1.31	(MGLY)	0.01
Formaldehyde (FORM)	4.49	(H2O)	16E+6

The RPM-IV plume-injected mode models the ambient conditions as well as the point source from which the VOCs are emitted. Complete stack information as well as each species' emission rate must be input into the model. The representative stack that all VOC emissions would occur is the Mineral Oil Absorber stack. It is necessary to disaggregate or split VOC emissions for input into the SORCES section when Carbon Bond Mechanism IV (CBM-IV) is used. EPA has supplied information from Urban Airshed Model (UAM) studies which list chemicals and their respective CBM-IV classes. VOC emissions were speciated or split by percent weight using the "Air Emissions Species Manual, Vol. 1" (EPA-450/2-88-003a). VOC species' emissions were then disaggregated into CBM-IV classes from the point source. CBM-IV class emissions as a result of the Hexane emission were speciated into 26.65 grams per second (g/sec) of Paraffins and NOx emissions were calculated at 2.28 g/sec of NO_2 and 0.12 g/sec of NO. Total plant-wide VOC and NOx emissions were modeled.

NAAQS modeling for 1 hour ozone concentrations were conducted in order to compare the results to the ozone NAAQS limit of 120.0 ppb. The maximum cell concentration for each time and distance specified was used for comparison to the ambient mode. OAM modeling results are shown in Table 7.

TABLE 7 - NAAQS Analysis for Ozone				
Time	**Distance**	**Ambient**	**Plume-Injected**	**Source Impact**
(hours)	(meters)	(ppb)	(ppb)	(ppb)
700.0	100.0	23.0	23.4	0.4
800.0	9840.0	45.4	46.2	0.8
900.0	20500.0	63.8	63.8	0
1000.0	28600.0	79.3	79.4	0.1
1100.0	34200.0	93.5	93.9	0.4
1200.0	41800.0	103.0	104.0	1
1300.0	53000.0	110.0	110.0	0
1400.0	67100.0	114.0	114.0	0
1500.0	82400.0	116.0	116.0	0
1600.0	98700.0	117.0	117.0	0
1700.0	115000.0	118.0	118.0	0
1800.0	131000.0	118.0	118.0	0
1900.0	146000.0	118.0	118.0	0

The impact (difference between the plume-injected and ambient modes) from ConAgra was insignificant with the maximum impact modeled at 1.0 ppb. All ambient plus plume-injected modes were below the NAAQS limit for ozone at every time period and every distance.

On July 17, 1997, the U.S. EPA promulgated a new NAAQS for ozone. The new standard is 0.08 parts per million, based on an eight-hour averaging time. At the current time, there are no adequate modeling tools available to evaluate the ozone impact of a single source over an eight-hour period.

Analysis and Results of Source Impact on PSD Increment

Maximum allowable increases (PSD increments) are established by 326 IAC 2-2 for NO_2, SO_2 and PM_{10}. This rule also limits a source to no more than 80 percent of the available PSD increment to allow for future growth. The impacts for PM_{10}, SO_2 and NO_2 from the proposed facility were modeled above significant impact increments and a PSD increment consumption analysis was required for both pollutants. Table 8 below shows the results of the PSD increment analysis for PM_{10}, SO_2 and NO_2. No violations of the 80 percent of available PSD increment for PM_{10}, SO_2 and NO_2 occurred as a result of the proposed facility and no further analysis was needed.

TABLE 8 - PSD Increment Analysis					
Poll.	Year	Time-Averaging Period	Maximum concentration (ug/m^3)	PSD Increment (ug/m^3)	Impact on PSD Increment
NO_2	1987	Annual	1.9	25.0	7.6%
PM_{10}	1987	2nd high 24 hour	23.0	30.0	76.7%
PM_{10}	1988	Annual	4.6	17.0	27.1%
SO_2	1991		253.8	512.0	49.6%
SO_2	1991	2nd high 24 hour	69.1	91.0	75.9%
SO_2	1987	Annual	5.5	20.0	27.5%

Part E

Hazardous Air Pollutant Analysis and Results

OAM presently requests data concerning the emission of Hazardous Air Pollutants (HAPs) listed in the 1990 Clean Air Act Amendments which are either carcinogenic or otherwise considered toxic and may be used by industries in the State of Indiana. These substances are listed as air toxic compounds on the State of Indiana, Department of Environmental Management, Office of Air Management's construction permit application Form Y. New sources with emissions of any one HAP over 10 tons/year or combined HAPs' emissions over 25 tons/year will be subject to toxic modeling analysis. Hexane emissions from ConAgra will total 927 tons/year.

OAM performed a HAP analysis using the ISCST3 model for Hexane. A maximum 8-hour off-property concentration was determined from the model and this concentration was recorded as a percentage of each HAP's Permissible Exposure Limit (PEL). The PELs were established by the Occupational Safety and Health Administration (OSHA). Table 9 shows the result of the HAP analysis with the maximum modeled concentration and the percentage of the PEL. ConAgra's maximum Hexane impact modeled below its PEL.

TABLE 9 - HAPs Modeling Results			
Pollutant	PEL (ug/m^3)	Modeled Concentrations (ug/m^3)	Percentage of PEL
Hexane	1800000.0	2048.5	0.11%

Part F

Additional Impact Analysis

The ConAgra PSD permit application provided an additional impact analysis performed by GAI Consultants. This analysis detailed impacts on economic growth, soils, vegetation and visibility. Industrial and residential growth is expected to occur over a broad area and is predicted to have negligible impact in the area.

Commercial growth, as a result of the proposed soybean processing facility, will occur at a gradual rate and will be accounted for in the background concentration measurements from air quality monitors. There will be no adverse impact on air quality in the area due to industrial, residential or commercial growth.

According to the modeled concentrations for the criteria pollutants PM_{10}, SO_2 and NO_2, there are no soils which might be adversely affected by the operation of the soybean processing facility. Additionally, the maximum modeled concentrations for PM_{10}, SO_2 and NO_2 are well below the threshold limits necessary to have adverse impacts on surrounding vegetation.

The nearest Class I area to the proposed soybean processing facility is the Mammoth Cave National Park located approximately 120 km to the southeast in Kentucky. The operation of ConAgra will not adversely affect the visibi-lity at this Class I area. The results of the additional impact analysis conclude the modification of ConAgra will have no adverse impact on economic growth, soils, vegetation or visibility in the immediate vicinity or on any Class I area.

Mail to: Permit Administration & Development Section
Office Of Air Management
100 North Senate Avenue
P. O. Box 6015
Indianapolis, Indiana 46206-6015

ConAgra Soybean Processing Company
Suite 800
P.O. Box 3100
Omaha, Nebraska 68103-3100

Affidavit of Construction

I, ______________________________, being duly sworn upon my oath, depose and say:
(Name of the Authorized Representative)

1. I live in ____________________ County, Indiana and being of sound mind and over twenty-one (21) years of age, I am competent to give this affidavit.

2. I hold the position of ________________ for ________________.
(Title) (Company Name)

3. By virtue of my position with ______________________,I have personal
(Company Name)

knowledge of the representations contained in this affidavit and am authorized to make

these representations on behalf of ConAgra Soybean Processing Company .

4. I hereby certify that ConAgra Soybean Processing Company, West Franklin, Marrs Township, Indiana 47620, has constructed the

(1) one (1) truck/rail grain receiving pit, maximum capacity of 40,000 bushels per hour, controlled by a receiving area baghouse (DF-1), and exhausting at stack Pt # DF1;

(2) one (1) truck grain receiving pit no. 1, maximum capacity of 40,000 bushels per hour, controlled by a receiving area baghouse (DF-2), and exhausting at stack Pt # DF2;

(3) one (1) truck grain receiving pit no. 2, maximum capacity of 40,000 bushels per hour, controlled by a receiving area baghouse (DF-3), and exhausting at stack Pt # DF3;

(4) one (1) barge grain unloading facility, maximum capacity of 20,000 bushels per hour, controlled by a barge receiving area baghouse (DF-6), and exhausting at stack Pt # DF6;

(5) one (1) totally enclosed rail/truck grain receiving pit drag conveyor (DC-1), maximum capacity of 40,000 bushels per hour;

(6) two (2) totally enclosed truck grain receiving pit #1 drag conveyors (DC-2), maximum capacity of 20,000 bushels per hour each;

(7) two (2) totally enclosed truck grain receiving pit #2 drag conveyors (DC-3), maximum capacity of 20,000 bushels per hour each;

(8) one (1) totally enclosed truck/rail grain receiving belt conveyor (BC-20), maximum capacity of 40,000 bushels per hour aspirated to a receiving area baghouse (DF-1), and exhausting at stack Pt # DF1;

(9) two (2) soybean rail receiving bucket elevators (RJL-1(to Garner scale) & RRL-1), maximum capacity of 40,000 bushels per hour each, controlled by a receiving area baghouse (DF-1), and exhausting at stack Pt # DF1;

(10) one (1) grain garner scale, maximum capacity of 40,000 bushels per hour, controlled by a receiving area baghouse (DF-1), and exhausting at stack Pt # DF1;

(11) two (2) soybean truck/barge receiving #1 bucket elevators (TRL-1 & BRL-1), maximum capacities of 40,000, and 20,000 bushels per hour respectively, maximum system capacity of 40,000 bushels per hour total, controlled by a receiving area baghouse (DF-2), and exhausting at stack Pt # DF2;

(12) two (2) soybean truck receiving #2 bucket elevator (TRL-1 and BSL-1), maximum capacity of 20,000 bushels per hour each, controlled by a receiving area baghouse (DF-3), and exhausting at stack Pt # DF3;

(13) two (2) covered barge grain receiving conveyors and one (1) covered barge grain receiving, and grain

and soybean meal loadout belt conveyor (BC-2), maximum system receiving capacity of 20,000 bushels per hour, aspirated to a barge receiving area baghouse (DF-6), and exhausting at stack Pt # DF6;

(14) one (1) soybean receiving bucket elevator, maximum capacity of 20,000 bushels per hour, controlled by a barge receiving area baghouse (DF-6), and exhausting at stack Pt # DF6;

(15) one (1) covered barge grain receiving belt conveyor (BC-2), and a bucket elevator (BRL-1), maximum receiving capacity of 20,000 bushels per hour, aspirated to a barge receiving system baghouse (DF-4), and exhausting at stack Pt # DF4;

(16) one (1) grain barge garner scale, maximum capacity of 20,000 bushels per hour, controlled by a barge receiving system baghouse (DF-4), and exhausting at stack Pt # DF4;

(17) two (2) covered barge soybean meal, and grains loadout belt conveyors (BC-2, and BC-26), maximum capacity of 40,000 bushels per hour aspirated to a barge loading baghouse (DF-5), and exhausting at stack Pt # DF5;

(18) one (1) barge soybean meal, and grains loadout system, maximum capacity of 40,000 bushels per hour, controlled by a barge loading baghouse (DF-5), and exhausting at stack Pt # DF5;

(19) four (4) totally enclosed drag conveyors, maximum capacity of 40,000 bushels per hour each, controlled by a elevator screening baghouse (DF-7A), and exhausting at stack Pt # DF7A;

(20) eight (8) grain screeners, maximum total capacity of 9,600 tons per hour, controlled by a elevator screening baghouse (DF-7A), and exhausting at stack Pt # DF7A;

(21) three (3) totally enclosed belt conveyors, transferring grains from elevators to the storage, maximum capacity of 40,000 bushels per hour each, controlled by a transfer #1 baghouse (DF-7B), and exhausting at stack Pt # DF7B;

(22) three (3) totally enclosed belt conveyors, transferring grains from elevators to the storage, maximum capacity of 40,000 bushels per hour each, controlled by a transfer #2 baghouse (DF-7C), and exhausting at stack Pt # DF7C;

(23) three (3) totally enclosed belt conveyors, transferring grains from elevators to the storage, maximum capacity of 40,000 bushels per hour each, controlled by a transfer #3 baghouse (DF-7D), and exhausting at stack Pt # DF7D;

(24) four (4) steel grain storage tanks, total capacity of 6,000,000 bushels, controlled by steel tanks storage baghouses (DF-8, 9, 10, and 11), and exhausting at stack Pt # DF 8, 9, 10, and 11;

(25) concrete grain storage silos, total capacity of 2,067,700 bushels;

(26) four (4) grain reclaim system belt conveyors (includes covered conveyor BC-2, and totally enclosed conveyors BC-14, BC-17, and BC-50), maximum system capacity of 1,200 tons per hour, controlled by a grain reclaim system #1 baghouse (DF-12), and exhausting at stack Pt # DF12 ;

(27) two (2) grain reclaim system #1 bucket elevators (TRL-1 & BSL-1), maximum capacity of 1,200 tons per hour each, controlled by a grain reclaim system #1 baghouse (DF-12), and exhausting at stack Pt # DF12 ;

(28) three (3) totally enclosed grain reclaim system #2 belt conveyors (includes BC-16, BC-17, and BC-50), maximum system capacity of 360 tons per hour each, controlled by a grain reclaim system #2 baghouse (DF-13), and exhausting at stack Pt # DF13 ;

(29) one (1) grain reclaim system #2 bucket elevator (PL-1), maximum capacity of 360 tons per hour, controlled by a grain reclaim system #2 baghouse (DF-13), and exhausting at stack Pt # DF13 ;

(30) one (1) 45 million Btu/hour natural gas fired grain dryer (DF-15), maximum capacity of 126 tons per hour at 5% moisture removal;

(31) one (1) dryer wet leg bucket elevator (WL-1), maximum capacity of 360 tons per hour;

(32) one (1) dryer dry leg bucket elevator (DL-1), maximum capacity of 360 tons per hour;

(33) two (2) totally enclosed dryer drag conveyors (DC-7 & DC-8), maximum capacity of 360 tons per hour each;

(34) one (1) soybean meal garner scale, maximum capacity of 1,200 tons per hour, controlled by a rail and

barge meal/grain/hull loadout baghouse (DF-18A), and exhausting at stack Pt # DF18A;

(35) one (1) covered meal/hulls/grain belt conveyor (BC-2), maximum capacity of 1,200 tons per hour, controlled by a rail and barge meal/grain/hull loadout baghouse (DF-18A), and exhausting at stack Pt # DF18A;

(36) one (1) totally enclosed soybean meal belt conveyor (BC-13), maximum capacity of 1,200 tons per hour, controlled by a rail and barge meal/grain/hull loadout baghouse (DF-18A), and exhausting at stack Pt # DF18A;

(37) one (1) rail load out system with loading spout, maximum capacity of 1,200 tons per hour, controlled by a rail and barge meal/grain/hull loadout (DF-18A), and exhausting at stack Pt # DF18A;

(38) one (1) totally enclosed soybean meal storage unloading drag conveyor (feeding the surge bins), maximum capacity of 400 tons per hour, controlled by a truck meal/grain/hull loadout baghouse (DF-18B), and exhausting at stack Pt # DF18B;

(39) one (1) totally enclosed soybean meal storage unloading drag conveyor (feeding the truck load out system), maximum capacity of 400 tons per hour, controlled by a truck meal/grain/hull loadout baghouse (DF-18B), and exhausting at stack Pt # DF18B;

(40) one (1) truck load out system with telescopic loading spout, maximum capacity of 400 tons per hour, controlled by a truck meal/grain/hull loadout baghouse (DF-18B), and exhausting at stack Pt # DF18B;

(41) one (1) meal car pneumatic vacuum system equipped with a meal car vacuum baghouse (FL-20603), and exhausting at stack Pt # FL-20603;

(42) one (1) vacuum clean up users system equipped with a soybean flake vacuum baghouse (FL-20803), and exhausting at stack Pt # FL-20803;

(43) one (1) whole soybean garner scale, maximum capacity of 280.14 tons per hour, controlled by a heater and scale cyclone (CY-20101), and exhausting at stack Pt # BL-20;

(44) one (1) totally enclosed soybean feed drag conveyor (CV-2D102, feeding the heaters), maximum capacity of 280.14 tons per hour, controlled by a hot dehulling cyclone (CY-20101), and exhausting at stack Pt # BL-20;

(45) three (3) soybean heaters (HE-20102, 20103, and 20104), maximum total capacity of 284.14 tons per hour, controlled by a heater and scale cyclone (CY-20101), and exhausting at stack Pt # BL-20;

(46) one (1) totally enclosed soybean feed drag conveyor (CV-20104, feeding the jet dryers), maximum capacity of 280.14 tons per hour, controlled by a heater and scale cyclone (CY-20101), and exhausting at stack Pt # BL-20;

(47) three (3) soybean jet dryers, maximum total capacity of 277.04 tons per hour, controlled by six jet dryers cyclones (CY-20201A & B, 20202 A & B, and 20203 A & B), and exhausting at stack Pt # BL-20;

(48) three (3) aspirators controlled by a hull refining cyclone(CY-20701), and exhausting at stack Pt # BL-20;

(49) six (6) precrackers (ME-2001, 2002, 2003, 2004, 2066, and 2067), maximum total capacity of 277.04 tons per hour;

(50) six (6) CCD dryers(SP-2001, 2002, 2003, 2004, 2005, and 2006), maximum total capacity of 277.04 tons per hour, controlled by a ccd dryers cyclone (CY-20301), and exhausting at stack Pt # BL-20;

(51) three (3) totally enclosed hull screeners, maximum total capacity of 20 tons per hour;

(52) two(2) secondary de-hullers, maximum total capacity of 20 tons per hour,

(53) six (6) cracking rolls (ME-2005, 2006, 2007, 2008, 2068, and 2069), maximum total capacity of 277.04 tons per hour;

(54) six (6) cascade conditioners (HE-2010, 2011, 2012, 2013, 2020, and 2021), maximum total capacity of 277.04 tons per hour, controlled by a conditioner cyclone (CY-20306), and exhausting at stack Pt # BL-20;

(55) one (1) soybean screening surge bin, controlled by a bean screening surge bin baghouse (FL-20802), and exhausting at stack Pt # FL-20802;

(56) one (1) soybean pod grinding system equipped with a baghouse (FL-20305), and exhausting at stack Pt # FL-20305;

(57) six (6) totally enclosed soybean flaking drag conveyors, maximum capacity of 260.42 tons per hour, controlled by a flake filter (FL-20401), and exhausting at stack Pt # FL-20401;

(58) twenty (20) flaking rolls (ME-2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, and 2028), maximum total capacity of 260.42 tons per hour, controlled by a flake filter (FL-20401), and exhausting at stack Pt # FL-20401;

(59) one (1) soybean fines hammer mill (MR20701), controlled by a flake filter (FL-20401), and exhausting at stack Pt # FL-20401;

(60) one (1) totally enclosed flake drag conveyor (feeding the air break) maximum total capacity of 260.42 tons per hour;

(61) one (1) totally enclosed flake extractor seal screw conveyor (CV30103, feeding the extractor), maximum total capacity of 260.42 tons per hour;

(62) one (1) soybean oil extractor (ME3001), maximum capacity of 260.42 tons per hour of soybean flakes controlled by a mineral oil absorber (one column, TW30501), and exhausted at stack Pt. # BL30501;

(63) a set of evaporators, capacity 56.83 tons per hour of soybean oil, controlled by a mineral oil absorber, and exhausted at stack Pt. # BL30501;

(64) a set of condensers and water separator to separate hexane and water, capacity of 56.83 tons per hour of soybean oil, controlled by a mineral oil absorber, and exhausted at stack Pt. # BL30501;

(65) one (1) mineral oil absorber (TW -30501) column with a mineral oil recirculation rate of 70 gallons per minute, and gas discharge rate of 341 acfm at 72^{0} F (L/G ratio of 0.205), capacity to control hexane emissions at a process weight rate of 213.11 tons per hour of meal cake, and exhausting at stack Pt. # BL 30501;

(66) one (1) totally enclosed DTDC feed drag conveyor (CV-3003), maximum capacity of 213.11 tons per hour;

(67) one (1) set of dryers (5 sections), and cooler (1 section), maximum capacity of 213.11 tons per hour, controlled by six (6) cyclones (CY-30301, 30302, 30303, 30304, 30305; and 30306 respectively);

(68) two (2) totally enclosed meal drag conveyors (CV30307 and 30308);

(69) one (1) totally enclosed finished meal weigh conveyor (WS-20601), maximum capacity of 213.11 tons per hour, controlled by a meal sizing and storage filter (FL-20501), and exhausting at stack Pt # FL-20501;

(70) one (1) paddle mixer (ME-20601), maximum capacity of 213.11 tons per hour;

(71) two (2) totally enclosed meal drag conveyors (CV-20601, and 20603), and one (1) totally enclosed bucket elevator (CV20602), maximum capacity of 213.11 tons per hour each, controlled by a meal sizing and storage filter (FL-20501), and exhausting at stack Pt # FL-20501;

(72) four (4) meal grinders (ME-4001, 4002, 4003, and 4004), maximum total capacity of 452 tons per hour, controlled by a meal sizing and storage filter (FL-20501), and exhausting at stack Pt # FL-20501;

(73) one (1) totally enclosed ground meal drag conveyor (CV-50202), maximum capacity of 452 tons per hour, controlled by a meal sizing and storage filter (FL-20501), and exhausting at stack Pt # FL-20501;

(74) four (4) totally enclosed ground meal screw conveyors (FD-50201, 2, 3, & 4), and four (4) ground meal screens (SC20501, 2, 3, and 4), maximum total capacity of 452 tons per hour;

(75) one (1) totally enclosed ground screened meal drag conveyor (CV-50203, transferring to weighing & storage), maximum capacity of 213.11 tons per hour, controlled by a meal sizing and storage filter (FL-20501), and exhausting at stack Pt # FL-20501;

(76) one (1) totally enclosed ground screened meal drag conveyor (CV-50204, transferring to recycle), maximum capacity of 239 tons per hour, controlled by a meal sizing and storage filter (FL-20501), and exhausting at stack Pt # FL-20501;

(77) five (5) meal storage bins (TK 20601, 20602, 20603, 20604, and 20902), maximum capacity of 150,000 cuft (3,000 tons) each, controlled by a meal sizing and storage filter (FL-20501), and exhausting at stack Pt. #FL 20501;

(78) four (4) totally enclosed belt conveyors (CV20603, CV20603A, CV20608A & CV20608B), feeding to meal/hull load out elevators or bins, maximum system capacity of 750 tons per hour, controlled by a meal load out filter (FL-20601), and exhausting at stack Pt # FL-20601;

(79) one (1) meal loadout bucket elevator (CV-20604), maximum capacity of 750 tons per hour, controlled by a meal load out conveyor #1 filter (FL-20601), and exhausting at stack Pt # FL-20601;

(80) one (1) hulls loadout bucket elevator, maximum capacity of 750 tons per hour, controlled by a meal load out conveyor #1 filter (FL-20601), and exhausting at stack Pt # FL-20601;

(81) three (3) meal loadout bins, maximum capacity of 7,000 cuft each, two (2) controlled by a meal filter (FL-20601), and exhausting at stack Pt. #FL 20601, and one (1) by a meal storage filter (FL 20602), and exhausting at stack Pt. #FL 20602;

(82) three (3) totally enclosed belt conveyors (CV20605A, CV20605B, & CV20607A), feeding to meal/hull loadout elevators or bins, maximum system capacity of 1,500 tons per hour, controlled by a meal filter (FL-20602), and exhausting at stack Pt # FL-20602;

(83) three (3) totally enclosed bucket elevators (CV-20607, CV20608, and CV20609), feeding to meal/hull loadout conveyors or bins, maximum system capacity of 1,500 tons per hour, controlled by a meal load out conveyor #2 filter (FL-20602), and exhausting at stack Pt # FL-20602;

(84) one (1) hull grinder surge bin (TK -20802), controlled by a hull grinder surge bin filter (FL-20801), and exhausting at stack Pt # FL-20801;

(85) two (2) totally enclosed conveyors (one screw (CV20802), and one drag (CV20803)), feeding to hull grinding, maximum system capacity of 250 tons per hour, controlled by a hull grinder surge bin filter (FL-20801), and exhausting at stack Pt # FL-20801;

(86) three (3) hull grinders, maximum system capacity of 250 tons per hour, controlled by a hull load out system filter (FL-20903), and exhausting at stack Pt # FL-20903;

(87) one (1) hull receiver (CY-20903), controlled by a hull load out system filter (FL-20903), and exhausting at stack Pt # FL-20903;

(88) one (1) hulls bin (TK-20901), maximum capacity of 14,000 cuft, controlled by a hull load out system filter (FL-20903), and exhausting at stack Pt # FL-20903;

(89) two (2) totally enclosed hulls bin drag conveyors (CV-20909 & 20911, transferring hulls to hulls load out elevator), controlled by a hull load out system filter (FL-20903), and exhausting at stack Pt # FL-20903

(90) one (1) hull pellet mill (ME-9012), maximum capacity of 30 tons per hour;

(91) three (3) totally enclosed conveyors (bucket elevator (CV-20903), two drag (CV20902, & CV20904)), feeding to hull storage, maximum system capacity of 30 tons per hour, controlled by a hull load out system filter (FL-20903), and exhausting at stack Pt # FL-20903;

(92) one (1) hull pellet mill cooler (HE-9011), maximum capacity of 30 tons per hour, controlled by a pellet cooler cyclone (CY-20901), and exhausting at stack Pt. # CY20901;

(93) one (1) ground hulls/pellets bin, nominal capacity of 150,000 cuft;

(94) one (1) lecithin grinding mill (ME-41502), maximum capacity of 1 ton per hour;

(95) two (2) totally enclosed conveyors (one bucket elevator (CV-41505), and one drag (CV-41504)), feeding to lecithin packaging, maximum capacity of 1 ton per hour each, controlled by a lecithin grinding mill filter (CY-41501), and exhausting at stack Pt. # CY-41501;

(96) two (2) totally enclosed ground lecithin drag conveyors (CV-41502 & 41503), maximum capacity of 1 ton per hour each;

(97) two (2) lecithin load out bins (TK-41601 & 41602), controlled by a lecithin grinding mill filter (CY-41501), and exhausting at stack Pt. # CY-41501;

(98) one (1) lecithin packaging equipment (ME-7301), maximum capacity of 1 ton per hour;

(99) one (1) rail car unloading DE silo (TK-41702), controlled by a filter;

(100) one (1) truck car unloading bleaching silo (TK-51104), controlled by a filter;

(101) one (1) citric acid bag unloading unloader (ME-51101);

(102) two (2) acid oil tanks (TK-50903 & 50905), controlled by a scrubber (SC-50901);

(103) one (1) continuous acid decanter (TK-50906), controlled by a scrubber (SC-50901);

(104) one (1) acidulation tank (TK-50908), vented to continuous acid decanter (TK-50906);

(105) two (2) sulfuric acid storage tanks (TK-50902 & 31205);

(106) one (1) D.E. bulk bag unloader (ME-50304);

(107) one (1) kaolin tank (TK-4017), nominal capacity of 5,000 cuft, controlled by a filter (FL-20605), and exhausting at stack Pt # FL-20605;

(108) one (1) D.E. bulk bag unloader (ME-50201);

(109) one (1) D.E. bulk bag unloader (ME-50301);

(110) one (1) D.E. bulk bag unloader (ME-50305);

(111) one (1) D.E. bulk bag unloader (ME-52401);

(112) one (1) D.E. bulk bag unloader (ME-52301);

(113) one (1) silica bulk bag unloader (ME-50101);

(114) one (1) carbon bulk bag unloader (ME-50202);

(115) two (2) nickel catalyst bulk bag unloaders (ME-50303A & B);

(116) two (2) main boilers # 1 & 2 (HE-5101 & 5102), 200 million Btu/hour each, natural gas or distillate oil fired, controlled by low NOx burners and flue gas recirculation, and exhausting to a single stack (TW5101);

(117) two (2) refinery boilers # 1 & 2 (ME-5001A & B), 10 million Btu/hour each, natural gas fired, controlled by low NOx burners and flue gas recirculation, and exhausting to two separate stacks (ME5001 A & B);

(118) one (1) hydrogen plant reformer boiler, 20 million Btu/hour, natural gas fired, controlled by low NOx burner and flue gas recirculation, and exhausting at stack Pt. # (F400);

(119) one (1) 500 HP firewater pump diesel engine (MO-5001), capacity 3000 gallons per minute, and exhausting to at stack Pt. # (MO5001);

(120) one (1) receiving area baghouse (DF-1) with a gas flow rate of 15,000 scfm at 70^0 F, and exhausting at stack Pt. # DF1;

(121) one (1) receiving area baghouse (DF-2) with a gas flow rate of 7,000 scfm at 70^0 F and exhausting at stack Pt. # DF2;

(122) one (1)receiving area baghouse (DF-3) with a gas flow rate of 7,000 scfm at 70^0 F, and exhausting at stack Pt. # DF3;

(123) one (1) barge receiving system baghouse (DF-4) with a gas flow rate of 3,450 scfm at 70^0 F, and exhausting at stack Pt. # DF4;

(124) one (1) barge loading baghouse (DF-5) with a gas flow rate of 6,650 scfm at 70^0 F, and exhausting at stack Pt. # DF5;

(125) one (1) barge receiving area baghouse (DF-6) with a gas flow rate of 10,700 scfm at 70^0 F, and exhausting at stack Pt. # DF6;

(126) one (1) elevator screening baghouse (DF-7A) with a gas flow rate of 5,200 scfm at 70^0 F, and exhausting at stack Pt. # DF7A;

(127) one (1) transfer #1 baghouse (DF-7B) with a gas flow rate of 6,500 scfm at 70^0 F, and exhausting at stack Pt. # DF7B;

(128) one (1) transfer #2 baghouse (DF-7C) with a gas flow rate of 6,500 scfm at 70^0 F, and exhausting at stack Pt. # DF7C;

(129) one (1) transfer #3 baghouse (DF-7D) with a gas flow rate of 6,500 scfm at 70^0 F, and exhausting at stack Pt. # DF7D

(130) four (4) steel tanks storage baghouses (DF-8, 9, 10, and 11) with a gas flow rate of 1,500 scfm each at 70^0 F, and exhausting at stack Pts # DF 8, 9, 10, and 11;

(131) two (2) grain reclaim systems baghouses #1 & 2 (DF-12 & 13) with a gas flow rate of 8,500, and 5,500 scfm at 70^0 F, respectively, and exhausting at stack Pt. # DF12 &13 respectively;

(132) one (1) rail and barge meal/grain/hull loadout baghouse (DF-18A) with a gas flow rate of 29,000 scfm at 70^0 F, and exhausting at stack Pt. # DF18A;

(133) one (1) truck meal/grain/hull loadout baghouse (DF-18B) with a gas flow rate of 28,500 scfm at 70^0 F, and exhausting at stack Pt. # DF18B;

(134) one (1) meal car vacuum baghouse (FL-20603) with a gas flow rate of 1,800 scfm at 70^0 F, and exhausting at stack Pt. # FL20603;

(135) one (1) soybean flake vacuum baghouse (FL-20803) with a gas flow rate of 1,500 scfm at 70^0 F, and exhausting at stack Pt. # FL20803;

(136) one (1) heater and scale cyclone (CY-20101) with a gas flow rate of 21,000 acfm at 2.3% moisture and 140^0 F, and exhausting at stack Pt. # BL-20;

(137) one (1) hull refining cyclone (CY-20701) with a gas flow rate of 10,000 acfm @ 2.3% moisture & 140^0 F, and exhausting at stack Pt. # BL-20;

(138) six (6) jet dryers cyclones (CY 20201 A & B, 20202 A & B, 20203 A & B) with a discharge total gas flow rate of 43,632 acfm @ 2.3% moisture & 140^0 F, and exhausting at stack Pt. # BL-20;

(139) one (1) CCD cyclone (CY-20301) with a gas flow rate of 65,000 acfm @ 2.3% moisture & 165^0 F, and exhausting at stack Pt. # BL-20;

(140) one (1) conditioner cyclone (CY-20306) with a gas flow rate of 65,000 acfm @ 2.3% moisture & 150^0 F, and exhausting at stack Pt. # BL-20;

(141) one (1) bean screening surge bin baghouse (FL-20802) with a gas flow rate of 1,500 scfm at 70^0 F, and exhausting at stack Pt. # FL20802;

(142) one (1) pod grinding receiver baghouse (FL-20305) with a gas flow rate of 1,500 scfm at 7 0^0 F, and exhausting at stack Pt. # FL20305;

(143) one (1) flaker baghouse (FL-20401) with a gas flow rate of 35,000 acfm @ 2.3 % moisture at 142^0 F, and exhausting at stack Pt. # FL-20401;

(144) one (1) meal dryer section # 1 cyclone (CY-30301) with a gas flow rate of 28,400 acfm at 177^0 F, and exhausting at stack Pt. #CY30301;

(145) one (1) meal dryer section # 2 cyclone (CY-30302) with a gas flow rate of 22,600 acfm at 140^0 F, and exhausting at stack Pt. #CY30302;

(146) one (1) meal dryer section # 3 cyclone (CY-30303) with a gas flow rate of 22,600 acfm at 132^0 F, and exhausting at stack Pt. #CY30303;

(147) one (1) meal dryer section # 4 cyclone (CY-30304) with a gas flow rate of 20,800 acfm at 119^0 F, and exhausting at stack Pt. #CY30304;

(148) one (1) meal dryer section # 5 cyclone (CY-30305) with a gas flow rate of 20,800 acfm at 119^0 F, and exhausting at stack Pt. #CY30304;

(149) one (1) meal cooler section cyclone (CY-30306) with a gas flow rate of 19,700 acfm at 101^0F, and exhausting at stack Pt. #CY30306;

(150) one (1) meal sizing and storage baghouse (FL-20501), with a gas flow rate of 34,000 acfm @ 2.3 % moisture, and at 120^0 F, and exhausting at stack Pt # FL-20501;

(151) two (2) meal load out conveyors # 1& 2 baghouses (FL-20601 and 20602) with a gas flow rate of 6,000 scfm each at 70^0 F, and exhausting at stack Pt. # FL20601 and 20602) respectively;

(152) one (1) hull grinder surge bin filter (FL-20801), with a gas flow rate of 8,000 acfm @ 2.3 % moisture, and at 80^0 F, and exhausting at stack Pt # FL-20801;

(153) one (1) hull load out system filter (FL-20903), with a gas flow rate of 20,000 acfm @ 2.3 % moisture, and at 180^{0}F, and exhausting at stack Pt # FL-20903;

(154) one (1) pellet cooler cyclone (CY-20901), with a gas flow rate of 14,000 acfm @ 2.3 % moisture, and at 160^0 F, and exhausting at stack Pt. # CY20901;

(155) one (1) lecithin grinding mill filter (CY-41501), with a gas flow rate of 4,000 acfm @ 2.3 % moisture, and at 120^0 F and exhausting at stack Pt. # CY-41501;

(156) one (1) rail car unloading DE silo filter with a gas flow rate of 1,870 scfm, and at 70^0 F;

(157) one (1) kaolin bin tank baghouse (FL-20605) with a gas flow rate of 1,800 scfm at 70^0 F, and exhausting at stack Pt. # FL-20605;

(158) one (1) truck car unloading bleaching silo filter with a gas flow rate of 1,870 scfm at 70^0 F;

(159) one (1) acidulation tank scrubber (SC-50901), with a gas flow rate of 5,318 acfm at 80^0 F and scrubbing liquid flow rate of 69.13 gallons per minute of 5 % NaOH, exhausting at stack Pt. # BL50901;

(160) one (1) fire pump diesel engine fuel oil tank (TK-5002), nominal capacity of 600 gallons;

(161) four (4) crude soy oil storage tanks (soybean oil), nominal capacity of 487,138 gallons each;

(162) one (1) soybean oil refinery with surface condensers and hot well;

(163) two (2) extraction system miscella (hexane & soybean oil) emergency dump tanks (nominal capacity of 45,000 gallons each), controlled by a mineral oil absorber (TW-30501) column, and exhausting at stack Pt. #BL 30501;

(164) two (2) deodorizer vapors scrubber to scrub deodorizer distillate vapors which have been removed from the soybean oil;

(165) one (1) solvent (hexane) work tank (TK-3001), nominal capacity of 25,000 gallons, controlled by a mineral oil absorber (TW-30501) column, and exhausting at stack Pt. #BL 30501;

(166) one (1) full miscella (oil and hexane) tank (TK-3003), nominal capacity of 15,000 gallons, controlled by a mineral oil absorber (TW-30501) column, and exhausting at stack Pt. #BL 30501;

(167) two (2) solvent storage (hexane) tanks (TK-3004 & 3005), nominal capacity of 30,000 gallons each, controlled by a mineral oil absorber (TW-30501) column, and exhausting at stack Pt. #BL 30501;

(168) one (1) #2 fuel oil storage tank (TK-5103), nominal capacity of 46,000 gallons;

(169) one (1) oil/acetone evaporator feed tank (TK-7101), nominal capacity of 24,000 gallons;

(170) two (2) crude oil tanks (TF-0001A & B), nominal capacity of 468,000 gallons each;

(171) one (1) crude oil day tank (TS-0002), nominal capacity of 5,500 gallons;

(172) one (1) precoat tank (TS-0003), nominal capacity of 5,000 gallons;

(173) one (1) slurry tank (TS-0004), nominal capacity of 2,650 gallons;

(174) one (1) filtered oil tank (TS-0005), nominal capacity of 6,675 gallons;

(175) one (1) hydrator (TS-0006), nominal capacity of 7,425 gallons;

(176) one (1) wet gums tank (TS-0007), nominal capacity of 400 gallons;

(177) two (2) degummed oil tanks (Future A & B), nominal capacity of 468,000 gallons each;

(178) one (1) degummed oil tank (TS-0010), nominal capacity of 3,300 gallons;

(179) one (1) lecithin tank (TS-0012A), nominal capacity of 13,200 gallons;

(180) five (5) lecithin tanks (TS0012B TO D, TS0013, and TS0014), nominal capacity of 6,600 gallons each;

(181) one (1) salad oil storage tank (TS-0015), nominal capacity of 7,900 gallons;

(182) one (1) fatty acid storage tank (TS-0016), nominal capacity of 7,900 gallons;

(183) one (1) acetic anhydride storage tank (TS-0018), nominal capacity of 7,000 gallons;

(184) one (1) blend tank (TS-0021), nominal capacity of 1,175 gallons;

(185) one (1) miscella tank (TS-0027), nominal capacity of 1,175 gallons;

(186) two (2) degummed oil storage tanks (TF-0101A & B), nominal capacity of 468,000 gallons each;

(187) one (1) start-up tank (TS-0102), nominal capacity of 26,400 gallons;

(188) one (1) caustic mix tank (TS-1001), nominal capacity of 400 gallons;

(189) one (1) silica mix tank (TS-1003), nominal capacity of 4,000 gallons;

(190) one (1) soapstock tank (TS-1004), nominal capacity of 1,900 gallons;

(191) one (1) precoat mix tank (TS-2001), nominal capacity of 3,600 gallons;

(192) one (1) clay slurry tank (TS-2003), nominal capacity of 3,600 gallons;

(193) one (1) bleached oil holding tank (TS-2101), nominal capacity of 3,600 gallons, controlled by nitrogen blanket;

(194) one (1) drip pan tank (TS-2102), nominal capacity of 900 gallons;

(195) two (2) R/B oil tanks (TS-2201 A & B), nominal capacity of 264,000 gallons each, controlled by nitrogen blanket;

(196) one (1) bleached cottonseed oil tank (TF-2202), nominal capacity of 52,700 gallons each, controlled by nitrogen blanket;

(197) two (2) rework oil tanks (TF-2203 A & B), nominal total capacity of 52,700 gallons, controlled by nitrogen blanket;

(198) one (1) recovered oil tank (TS-2204), nominal capacity of 13,200 gallons;

(199) one (1) scrap oil tank (TS-2205), nominal capacity of 1,275 gallons;

(200) one (1) C/S oil tank (TS-2206), nominal capacity of 52,700 gallons, controlled by nitrogen blanket;

(201) one (1) refined oil tank (TF-2207), nominal capacity of 52,700 gallons, controlled by nitrogen blanket;

(202) six (6) multi oil tanks (TF-2208 A to F), nominal capacity of 26,400 gallons each, controlled by nitrogen blanket;

(203) two (2) filtered feed oil tanks (TP-3002 A & B), nominal capacity of 10,500 gallons each, and controlled by a condenser;

(204) two (2) charge tanks (TP-3003 A & B), nominal capacity of 7,900 gallons each, and controlled by a condenser;

(205) one (1) precoat tank (TS-3101), nominal capacity of 1,700 gallons, and controlled by nitrogen blanket;

(206) one (1) fresh catalyst tank (TS-3102), nominal capacity of 400 gallons, and controlled by nitrogen blanket;

(207) two (2) reuse catalyst tanks (TS-3103 A & B), nominal capacity of 1,700 gallons each, and controlled by nitrogen blanket;

(208) two (2) polish filter feed tanks (TS-3105 A & B), nominal capacity of 1,700 gallons each, and controlled

by nitrogen blanket;

(209) one (1) re-use catalyst tank (TS-3109), nominal capacity of 1,500 gallons, and controlled by nitrogen blanket;

(210) seven (7) base stock tanks (TF-4001 A to G), nominal capacity of 52,700 gallons each, and controlled by nitrogen blanket;

(211) one (1) C/S stearine oil tank (TS-4002), nominal capacity of 13,200 gallons, and controlled by nitrogen blanket;

(212) one (1) S/B stearine oil tank (TS-4003), nominal capacity of 13,200 gallons, and controlled by nitrogen blanket;

(213) six (6) blend tanks (TF-4004 A to F), nominal capacity of 52,700 gallons each, and controlled by nitrogen blanket;

(214) one (1) P/O stearine tank (TS-4005), nominal capacity of 26,400 gallons, and controlled by nitrogen blanket;

(215) two (2) measuring tanks (TS-5001 A & B), nominal capacity of 1,100 gallons each, and controlled by a condenser;

(216) eight (8) finish oil tanks (TF-6001 A to H), nominal capacity of 52,700 gallons each, and controlled by nitrogen blanket;

(217) four (4) finish oil tanks (TF-6001 I to L), nominal capacity of 26,400 gallons each, and controlled by nitrogen blanket;

(218) two (2) salad oil tanks (TF-6001 M & N), nominal capacity of 264,000 gallons each, and controlled by nitrogen blanket;

(219) one (1) BO oil tank (TF-60010), nominal capacity of 132,000 gallons, and controlled by nitrogen blanket;

(220) three (3) salad oil tanks (TF-6002 A to C), nominal capacity of 132,000 gallons each, and controlled by nitrogen blanket;

(221) one (1) liquid shortening tank (TS-6003), nominal capacity of 26,400 gallons, and controlled by nitrogen blanket;

(222) one (1) caustic storage tank (TS-8002), nominal capacity of 8,000 gallons;

(223) one (1) distillate storage tank (TS-8004), nominal capacity of 26,400 gallons;

(224) one (1) emulsifier storage tank (TS-8005), nominal capacity of 13,200 gallons;

(225) two (2) propylene glycol storage tanks (TS-9001 & 9002), nominal capacity of 14,000 gallons each;

(226) one (1) sulfuric acid storage tank (TS-11001), nominal capacity of 4,600 gallons, controlled by a demister;

(227) two (2) batch acidulation tanks (TS-11005 A & B), nominal capacity of 4,000 gallons each, controlled by an acidulation tank scrubber (SC-50901), and exhausting at stack Pt. # BL50901;

(228) one (1) soapstock tank (TS-11008), nominal capacity of 10,500 gallons;

(229) one (1) ammonia storage tank (TS-11009), nominal capacity of 3,000 gallons;

(230) two (2) crude oil tanks (TF-0102 A & B), nominal capacity of 65,900 gallons each;

(231) two (2) shift tanks (TK-3006 & 3007), nominal capacity of 32,900 gallons each;

(232) one (1) recovered oil tank (TK7105), nominal capacity of 600 gallons.

in conformity with the requirements and intent of the construction permit application received by the Office of Air Management on May 2, 1997, and as permitted pursuant to **Construction Permit No. CP-129-8541, Plant ID No. 129-00039** issued on ____________________

5. Additional (?operations/facilities) were constructed/substituted as described in the attachment to this document and

were not made in accordance with the construction permit. (Delete this statement if it does not apply.)

6. I hereby certify that ConAgra Soybean Processing Company is now subject to the Title V program and will submit a Title V operating permit application within twelve (12) months from the postmarked submission date of this Affidavit of Construction.

Further Affiant said not.

I affirm under penalties of perjury that the representations contained in this affidavit are true, to the best of my information and belief.

____
Signature

____
Date

STATE OF INDIANA)
)SS

COUNTY OF ____________________)

Subscribed and sworn to me, a notary public in and for ________________________ County and State of Indiana on this __________________ day of ____________________, 19 ________ .

My Commission expires: ________________________

____
Signature

____
Name (typed or printed)

ConAgra Soybean Processing Company CP 129-8541
Marrs Township, Indiana ID 129-00039
Review Engineer: Dr. T. P. Sinha

APPENDIX A

The crush plant has a design capacity of 6250 tons per day or 2,281,250 tons per year.
This capacity is that of the extractor.
To determine country-run (elevator receiving) annual rate, the crush rate must be increased due to moisture, foreign material, and hull removal prior to the extraction process. The country-run necessary to support the desired crush rate is 2,552,912 tons.

The facility also receives grain for loadout without processing. The maximum allocated for this purpose is 1,500,000 tons per year (50,000,000 bushels)

Notes:
The emissions are calculated as fugitive for the sources that have potential fugitive emissions.
The 99% capture of fugitives is based on the following: Two wall, roofed enclosures below grate pivoting baffles & aspiration for receiving pits, the side wind deflectors for aspiration for barge unloading hopper, the telescoping/aspirated loaders for loadout.
The emissions for filters are calculated based on inlet loading (potential emissions) and outlet loading (maximum emissions).

Receiving System
Truck receiving pit 1

Basis 1	2,552,912	Crush tons	
Basis 2	1,500,000	Merchandising tons	
Basis 3	40,000	Bu/hr for TRL-1	
PM Emission Factor	0.180	lb/ton	(Table 9.9.1-1, Draft
PM10 Emission Factor	0.059	lb/ton	AP-42, July, 1997)
PM10/PM ratio	0.328		
Unloading rate/hour	1,200	tons (Basis 3)	
Unloading rate/year	4,052,912	tons (Basis 1+ Basis 2)	
Capture efficiency	99	%	

Potential PM emissions from grain unloading except fugitive emissions = Emis. factor * process rate * capture eff. /100

a. Max Hourly = (0.18 lb/ton)*(1,200 tons/hr)*(99/100)
= 214 lbs/hr

b. Max Yearly = (0.18 lb/ton)*(4,052,912 ton/year)*(99/100)/(2,000 lb/ton)
= 361 tons/yr

Potential PM10 emiss. from grain unloading except fugitive emissions = (PM Emissions)*(PM10/PM factor)

a. Max Hourly = (214 lb/hr)*(0.328)
= 70.1 lbs/hour

b. Max Yearly	=	(PM)*(PM10/PM factor)
	=	(361 ton/yr)*(0.328)
	=	118 tons/year
Potential fug. PM emiss. from grain unloading	=	Emission factor * process rate *(100-Cap. eff.) /100
a. Max Hourly	=	(0.18 lb/ton)*(12,00 ton/hr)*((100-99)/100)
	=	2.16 lbs/hr
b. Max Yearly	=	(0.18 lb/ton)*(4,052,912 ton/yr)* ((100-99)/100)/(2,000 lb/ton)
	=	3.65 tons/yr
Potential fug. PM10 emiss. from grain unloading	=	(PM Emissions)*(PM10/PM factor)
a. Max Hourly	=	(2.16 lb/hr)*(0.328)
	=	0.708 lbs/hr
b. Max Yearly	=	(PM Emissions)*(PM10/PM factor)
	=	(3.65 ton/yr)*(0.328)
	=	1.20 tons/yr

Truck receiving pit 2

Basis 1	40,000	bu/hr. for TRL-1 + BSL-1	
PM Emission Factor	0.180	lb/ton	(Table 9.9.1-1, Draft
PM10 Emission Factor	0.059	lb/ton	AP-42, July, 1997)
PM10/PM ratio	0.328		
Unloading rate/hour	1,200	tons	
Unloading rate/year	4,052,912	tons	
Capture efficiency	99	%	

Potential PM emiss. from grain unloading except fugitive emissions	=	Emis. factor * process rate * capture eff. /100
a. Max Hourly	=	(0.18 lb/ton)*(1,200 ton/hr)*(99/100)
	=	214 lbs/hour
b. Max Yearly	=	(0.18 lb/ton)*(4,052,912 ton/yr)* (99/100)/(2,000 lb/ton)
	=	361 tons/yr
Pot. PM10 emissions from grain unloading except fugitive emissions	=	(PM Emissions)*(PM10/PM factor)
a. Max Hourly	=	(214 lb/hr)*(0.328)
	=	70.1 lbs/hr

b. Max Yearly	=	(361 ton/yr)*(0.328)	
	=	118	tons/yr
Potential Fugitive PM emiss. from grain unloading	=	Emis. factor *process rate *(100-Cap. eff.) /100	
a. Max Hourly	=	(0.18 lb/ton)*(1,200 ton/hr)*((100-99)/100)	
	=	2.16	lbs/hr
b. Max Yearly	=	(0.18 lb/ton)*(4,052,912 ton/yr)* (100-99)/100)/(2,000 lb/ton)	
	=	3.65	tons/yr
Potential fug. PM10 emiss. from grain unloading	=	(PM)*(PM10/PM factor)	
a. Max Hourly	=	(2.16 lb/hr)*(0.328)	
	=	0.708	lbs/hr
b. Max Yearly	=	(PM)*(PM10/PM factor)	
	=	(3.65 ton/yr)*(0.328)	
	=	1.20	tons/yr

Truck/rail receiving pit

	40,000	bu/hr for DC1	
PM Emission Factor	0.180	lb/ton	(Table 9.9.1-2, Interim
PM10 Emission Factor	0.059	lb/ton	AP-42)
PM10/PM ratio	0.328		
Unloading rate/hour	1,200	tons	
Unloading rate/year	4,052,912	tons	
Capture efficiency	99	%	

Potential PM emiss. from grain unloading except fugitive emissions	=	Emis. factor * process rate * capture eff. /100	
a. Max Hourly	=	(0.18 lb/ton)*1,200 ton/hr)*(99/100)	
	=	214	lbs/hr
b. Max Yearly	=	(0.18 lb/ton)*(4,052,912 ton/yr)* (99/100)/(2000 lb/ton)	
	=	361	tons/yr
Potential PM10 emiss. from grain unloading except fugitive emissions	=	(PM)*(PM10/PM factor)	
a. Max Hourly	=	(214 lb/hr)*(0.328)	

	=	70.1	lbs/hr
b. Max Yearly	=	(361 ton/yr)*(0.328)	
	=	118	tons/yr
Potential fugitive PM emiss. from grain unloading	=	Emis. factor *process rate *(100-Cap. eff.) /100	
a. Max Hourly	=	(0.18 lb/ton)*(1,200 ton/hour)*((100-99)/100)	
	=	2.16	lbs/hr
b. Max Yearly	=	(0.18 lb/ton)*(4,052,912 ton/yr)* ((100-99)/100)/(2,000 lb/ton)	
	=	3.65	tons/yr
Pot. fugitive PM10 emiss. from grain unloading	=	(PM)*(PM10/PM factor)	
a. Max Hourly	=	(2.16 lb/hr)*(0.328)	
	=	0.708	lbs/hr
b. Max Yearly	=	(PM)*(PM10/PM factor)	
	=	(3.65 ton/yr)*(0.328)	
	=	1.20	tons/yr

Barge unloading

Unloading rate/hour	20,000	bu/hr
PM Emission Factor	0.600	lb/ton
PM10 Emission Factor	0.150	lb/ton
PM10/PM ratio	0.250	
Unloading rate/hour	600	tons
Unloading rate/year	5,256,000	tons
Capture efficiency	99.5	

Half of the PM/PM10 emissions is for unloading and half from loading.

Potential PM emissions from	=	Emis. factor * process rate * 0.5*capture eff./100	
grain unloading except	=	(0.60 lb/ton)*(600 ton/hr)*0.5*(99.5/100)	
fugitive emissions	=	179	lbs/hr
a. Max Hourly			
b. Max Yearly	=	(0.60 lb/ton)*(5,256,000 ton/yr)*0.5 (99.5/100)/(2,000 lb/ton)	
	=	784	tons/yr
Pot. PM10 emiss. from	=	(PM Emissions)*(PM10/PM factor)	
grain unloading except	=	(179 lbs/hr)*(0.25)	

fugitive emissions	=	44.8	lbs/hr
a. Max Hourly			
b. Max Yearly	=	(PM Emissions)*(PM10/PM factor)	
	=	(784 tons/yr)*(0.25)	
	=	196	tons/yr
Pot. fugitive PM emiss. from grain unloading	=	Emis. factor *process rate *0.5*(100-cap. eff.)/100	
a. Max Hourly	=	(0.60 lb/ton)*(600 ton/hr)*0.5*(100-99.5)/100	
	=	0.90	lbs/hr
b. Max Yearly	=	(0.60 lb/ton)*(5,256,000 ton/yr)*0.5*(100-99.5)/100)/(2,000 lb/ton)	
	=	3.94	tons/yr
Potential fugitive PM10 emiss. from grain unloading	=	(PM Emissions)*(PM10/PM factor)	
a. Max Hourly	=	0.225	lbs/hr
b. Max Yearly	=	(PM Emissions)*(PM10/PM factor)	
	=	(3.94 ton/yr)*(0.25)	
	=	0.986	tons/yr

Barge Unloading Conveying

Conveying rate	20,000	bu/hr
PM Emission Factor	0.061	lb/ton
PM10 Emission Factor	0.034	lb/ton
PM10/PM ratio	0.557	
Unloading rate/hour	600	tons
Unloading rate/year	5,256,000	tons (Basis: 1/2 time operation)
Capture efficiency	95	% Loading & transfer points are enclosed and aspirated.

Half of the PM/PM10 emissions is for unloading and half from loading.

Potential PM emissions from	=	Emis. factor * process rate * 0.50*capture eff./100	
grain conveying except fugitive emissions	=	(0.061 lb/ton)*(600 tons/hr)0.5*95/00	
a. Max Hourly	=	17.4	lbs/hr
b. Max Yearly	=	(0.061 lb/ton)*(5,256,000 ton/yr)*0.5*(95)/100)/(2,000 lb/ton)	
	=	76.1	ton/yr

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Potential PM10 emissions from	=	(PM Emissions)*(PM10/PM factor)	
grain conveying except	=	(17.4 lbs/hr)*(0.557)	
fugitive emissions			
a. Max Hourly	=	9.68	lbs/hr
b. Max Yearly	=	(76.1 tons/yr)*(0.557)	
	=	42.4	ton/yr
Potential fugitive PM emissions from grain conveying	=	Emis. factor *process rate * 0.50*(1-cap. eff.)/100	
a. Max Hourly	=	(0.061 lb/ton)*(600 tons/hr)0.5*(1-95/100)	
	=	0.915	lbs/hr
b. Max Yearly	=	(0.061 lb/ton)*(5,256,000 ton/yr)*0.5* (1-95)/100)/(2,000 lb/ton)	
	=	4.01	ton/yr
Potential fugitive PM10	=	(PM Emissions)*(PM10/PM factor)	
emissions from grain conveying	=	(0.915 lbs/hr)*(0.557)	
a. Max Hourly	=	0.510	lbs/hr
b. Max Yearly	=	(74.01tons/yr)*(0.557)	
	=	2.23	ton/yr

Receiving system

The dump pits belt conveyors, and receiving legs are totally enclosed. However, they are aspirated to baghouse to create negative pressure in the system. Maximum controlled non-fugitive PM emissions from truck only (2) and truck & rail (1) pits, barge clanshell unloading/hopper, scale system & receiving conveyors. Note: All belt and drag conveyors are totally enclosed. Each is hard-flanged to the inlet and outlet spout. Aspiration is designed to maintain all conveyors and silo bins under a negative pressure. Scale weigh hoppers and garners are intervented.

Truck pit 1 filter - DF3	7,000	scfm	
Truck pit 2 filter - DF2	7,000	scfm	
Truck & Rail pit filter DF1	15,000	scfm	
Barge load filter - DF5	6,650	scfm	
Barge unload filter -DF6	10,700	scfm	
Rec. barge scale system - DF4	3,450	scfm	
DF1 - DF6 total air	49,800	scfm	
Outlet loading	0.001	gr/scf	Manufacturer's
PM10/PM Ratio	1.00		guarantee

As per the applicant the maximum emissions result from the barge receiving/conveying system.

Max. cont. PM emissions from receiving system	=	Baghouse outlet grain loading * gas flow rate
a. Max Hourly	=	(0.001 gr/scf)*(14,150 cfm)*(60 min/hr) /(7,000 grains/lb)
	=	0.121 lbs/hr
b. Max Yearly	=	(0.121 lb/hr)*(8,760 hrs/yr)/(2,000 lb/ton)
	=	0.531 tons/yr
Max. cont. PM10 emissions from receiving system	=	(PM Emissions)*(PM10/PM factor)
a. Max Hourly	=	(0.121 lb/hr)*(1)
	=	0.121 lbs/hr
b. Max Yearly	=	(PM Emissions)*(PM10/PM factor)
	=	(0.531 tons/yr)*(1)
	=	0.531 tons/yr
Allowable PM emissions from rule 326 IAC 6-3-2 for the receiving system	=	55.0* P0.11 - 40 lbs/hr
	=	55.0*1200*0.11 - 40
	=	80.0 lbs/hr
	=	(80 lbs/hr)*(8,760 hr/yr)/(2,000 lb/ton)
	=	350 tons/yr
Potential PM emiss. from receiving system	=	(Point + Fugitive) PM emissions
	=	Barge pot.emiss.+Part truck emiss.
	=	(784 +3.94+76.1+4.01) + (784 +3.94+76.1+4.01) * (4,052,912 -2,628,000)/(4,052,912) ton/yr
	=	1,174 tons/yr
Potential PM10 emiss. from receiving system	=	(Point + Fugitive) PM10 emissions
	=	Barge pot.emiss.+Part truck emiss.
	=	(196+0.986+42.4+2.23)+(196+0.986+42.4+2.23) * (4,052,912 -2,628,000)/(4,052,912) ton/yr
	=	327 tons/yr
Max. cont. PM emissions from receiving system	=	(Filter (DF4+DF6) PM emissions + Barge unload & conveying fug. PM emissions)
	=	(0.531 + 3.94 +4.01) tons/yr
	=	8.48 tons/yr
Max. cont. PM10 emissions from receiving system	=	(Filter (DF4+DF6) PM10 emissions + Barge unload & conveying fug. PM10 emissions)

	=	(0.531 + 0.986 +2.23) tons/yr	
	=	3.75	tons/yr
State allow.PM emiss. from the truck, rail & barge receiving process for the purpose of permitting	=	350	tons/yr

Bean Screener

PM Emission Factor	0.075	lb/ton	(cleaner factor -
PM10 Emission Factor	0.075	lb/ton	AP-42, 7/97)
PM10/PM ratio	1.00		
Rate/hour	9600.0	tons	
Rate/year	4,052,912	tons	
Capture efficiency	100	%	

Potential PM emissions from soybean screener	=	Emission factor * process rate	
a. Max Hourly	=	(0.075 lb/ton)*(9,600 ton/hr)	
	=	720	lbs/hr
b. Max Yearly	=	(0.075 lb/ton)*(4,052,912 tons/yr)/(2,000 lb/ton)	
	=	152	tons/yr
Potential PM10 emissions from soybean screener	=	(PM Emissions)*(PM10/PM factor)	
a. Max Hourly	=	(720 lb/hr)*(1.0)	
	=	720	lbs/hr
b. Max Yearly	=	(PM Emissions)*(PM10/PM factor)	
	=	(152 ton/yr)*(1.0)	
	=	152	tons/yr

Filter - DF7A	5,200	scfm
Outlet loading	0.001	gr/scf
PM10/PM Ratio	1.00	

Max. controlled PM emiss. from soybean screener	=	Baghouse outlet grain loading * gas flow rate /(7,000 grains/lb)	
a. Max Hourly	=	(0.001 gr/scf)*(5,200 scfm)*(60 min/hr)	
	=	0.045	lbs/hr
b. Max Yearly	=	0.045 *(8,760 hr/yr)/(2,000 lb/ton)	
		0.195	tons/yr

Max. controlled PM10 emiss. from soybean screener	=	(PM)*(PM10/PM factor)	
a. Max Hourly	=	(0.045 lb/hr)*(1)	
	=	0.045	lbs/hr
b. Max Yearly	=	(PM)*(PM10/PM factor)	
		(0.195 ton/yr)*(1)	
		0.195	tons/yr
Allowable PM emiss. from	=	55.0* P0.11 - 40	lbs/hr
326 IAC 6-3-2 for the	=	55.0*9600**0.11 - 40	lbs/hr
screener system	=	110.8	lbs/hr
	=	(110.8 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	485	tons/yr
Max. controlled PM emiss.	=	filter PM emissions	
from soybean screener	=	0.195	tons/yr

Grain dryer (One)

PM Emission Factor	11.64	lbs/hr Dryer manufacturers have data supporting emissions rates no greater than 11.64 lbs/hr PM for a 4,200 bushel/hr unit.
PM10/PM ratio	0.250	Engg. Assumption
Process rate	4,200	bu/hr @ 5 % moisture removal
Process rate	126	ton/hr
Process rate	1,103,760	ton/yr
Air recycle rate	23.1	%

Potential PM emissions from grain drying			
a. Max Hourly	=	11.64	lbs/hr
b. Max Yearly	=	(11.64 lb/hr)*(8,760 hrs/yr)/(2,000 lb/ton)	
	=	51.0	tons/yr
Potential PM10 emissions from grain drying	=	(PM Emissions)*(PM10/PM factor)	
a. Max Hourly	=	(11.6 lb/hr)*(0.25)	
	=	2.91	lbs/hr
b. Max Yearly	=	(PM Emissions)*(PM10/PM factor)	
	=	(51.0 tons/yr)*(0.25)	
	=	12.7	tons/yr

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Max. cont. PM emissions from grain drying	=	Manufacturer guaranteed PM emissions	
a. Max Hourly	=	11.64	lbs/hr
b. Max Yearly	=	51.0	tons/yr
Max. cont. PM10 emissions	=	Controlled PM emissions*(PM10/PM)	
from grain drying	=	11.64 lb/hr*0.25	
a. Max Hourly	=	2.91	lbs/hr
b. Max Yearly	=	12.7	tons/yr
Allow. PM emissions from	=	55.0* P**0.11 - 40	lbs/hr
rule 326 IAC 6-3-2 for	=	55.0*126**0.11 - 40	lbs/hr
grain drying	=	53.6	lbs/hr
	=	(53.6 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	235	tons/yr
Max. cont. PM emissions from grain drying	=	51.0	tons/yr
Potential PM emissions from grain drying	=	51.0	tons/yr
State allow. PM emiss. from grain drying for the purpose of permitting	=	51.0	tons/yr

Grain storage loading
Concrete storage is 31 silos, each with a capacity of 66,700 bu. Steel tank storage is 4 tanks of capacities: 1,500,000. Total grain storage is 8,067,700 bu.

PM Emission Factor	0.020	lb/ton	(Table 9.9.1-3, Draft AP-42, 11/95
PM10/PM ratio	0.557		Draft AP-42, Table 9.9.1-1, 7/97
Loading rate/hour	3,000	tons	Comb. loading rate = 95,000 bu/hr
Loading rate/year	4,052,912	tons	

Potential PM emissions	=	Emission factor * process rate	
from grain bin loading	=	(.02) * (3,000 tons/hr)	
a. Max Hourly		60.0	lbs/hour
b. Max Yearly	=	(0.02 lb/ton)*(4,052,912 ton/yr)/(2,000 lbs/ton)	
	=	40.5	tons/year

Potential PM10 emissions from grain bin loading	=	Potential PM emissions *(PM10/PM factor)		
a. Max Hourly	=	(60 lb/hr)*(0.557)		
	=	33.4	lbs/hr	
b. Max Yearly	=	(40.5 ton/yr)*(0.557)		
	=	22.6	tons/yr	

Note: Each tank filter creates a negative pressure in the conveyors feeding the tank. A maximum of 2 would be filled at any one time. A powered bin vent does not operate when "its" tank is receiving soybeans. The vents control in-tank condensation.

Steel tanks filters, DF-8, 9, 10,11	1,500	scfm each	2 Simultaneous operation
Elev leg/conveyor - DF7B, C, D	6,500	scfm each	3 Simultaneous operation
Total air - DF7B-D, 8, 9, 10, &11	25,500	scfm = acfm	
No. operating at any one time	5	2 of DF8 to DF11 and DF7B, C & D	
Outlet loading	0.001	gr/scf	
PM10/PM Ratio	1.00		

Max. cont. PM emissions from grain bins loading	=	Baghouse outlet grain loading * gas flow rate		
a. Max Hourly	=	(0.001 gr/scf)*(22,500 scfm)*(60 min/hour)		
	=	0.193	lbs/hr	/(7,000 grains/lb)
b. Max Yearly	=	(0.193 lb/hr)*(8,760 hrs/yr)/(2,000 lb/ton)		
	=	0.845	tons/yr	
Max. cont. PM10 emissions from grain bins loading	=	(PM)*(PM10/PM factor)		
a. Max Hourly	=	(0.193 lb/hr)*(1)		
	=	0.193	lbs/hr	
b. Max Yearly	=	(PM)*(PM10/PM factor)		
	=	(0.845 ton/yr)*(1)		
	=	0.845	tons/yr	
Allow. PM emissions from	=	55.0* P**0.11 - 40		lbs/hr
rule 326 IAC 6-3-2 for	=	55.0*2850**0.11 - 40		lbs/hr
grain bin loading	=	92.7	lbs/hour	
	=	(91.9 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)		
	=	406	tons/yr	
Max. cont. PM emissions from grain loading	=	0.845	tons/yr	

Potential PM emissions from grain loading	=	40.5	tons/yr	
State allow PM emissions from grain bin loading for the purpose of permitting	=	0.845	tons/yr	

Grain Storage unloading

Basis 1	80,000	Bu/hr. for TRL-1 & SBL-1	
PM Emission Factor	0.061	lb/ton	(Draft AP-42, 7/97)
PM10 Emission Factor	0.034	lb/ton	
PM10/PM ratio	0.557		
Unloading rate/hour	2,400	tons	
Unloading rate/year	4,052,912	tons	

Potential PM emissions from grain unloading	=	Emission factor * process rate	
a. Max Hourly	=	(0.061 lb/ton)*(2,400 ton/hr)	
	=	146	lbs/hr
b. Max Yearly	=	(0.061 lb/ton)*(4,052,912 tons/yr)/(2,000 lb/ton)	
	=	124	tons/yr
Potential PM10 emissions from grain unloading	=	PM emission * (PM10/PM) factor	
a. Max Hourly	=	(146 lb/hr)*(0.557)	
	=	81.6	lbs/hr
b. Max Yearly	=	(124 ton/yr)*(0.557)	
	=	68.9	tons/yr
Max. controlled PM emiss. from soybean unloading	=	Baghouse outlet grain loading * gas flow rate	

Bin unload filter - DF12	8,500	scfm
Bin unload filter - DF13	5,500	scfm
Outlet loading	0.001	gr/scf
PM10/PM Ratio	1.00	
Operating gas flow	14,000	scfm

a. Max Hourly	=	(0.001 gr/scf)*(14,000 scfm)*(60 min/hour) /(7,000 grains/lb)	
	=	0.12	lbs/hr

b. Max Yearly	=	(0.12 lb/hr)*(8,760 hrs/yr)/(2,000 lb/ton)
	=	0.53 tons/yr
Max. cont. PM10 emiss. from	=	(PM lb/hr)*(PM10/PM factor)
soybean bin unloading		(0.12 lb/hr)*(1)
a. Max Hourly	=	0.12 lbs/hr
b. Max Yearly	=	(0.53 ton/yr)*(1)
	=	0.53 tons/yr
Allowable PM emiss. from	=	55.0* P0.11 - 40 lbs/hr
326 IAC 6-3-2 for the soybean bin	=	55.0*3360*0.11 - 40
unloading & transfer	=	89.5 lbs/hr
	=	(89.5 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)
	=	392 tons/yr
Max. controlled PM emiss.	=	filter PM emissions
from the soybean bin	=	0.526 tons/yr
unloading & transfer		

Hot dehulling system

Soybean scale & conveying

PM Emission Factor	0.061	lb/ton	Draft AP-42, 7/97
PM10 Emission Factor	0.034	lb/ton	
PM10/PM ratio	0.557		
Rate/hour	284.14	tons	
Rate/year	2,489,089	tons	
Capture efficiency	100	%	

Potential PM emissions	=	Emission factor * process rate
from soybean heaters		
a. Max Hourly	=	(0.061 lb/ton)*(284.14 ton/hr)
	=	17.3 lbs/hr
b. Max Yearly	=	(17.3 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)
	=	75.9 tons/yr
Potential PM10 emissions	=	(PM Emissions)*(PM10/PM factor)
from soybean heaters		
a. Max Hourly	=	(17.3 lb/hr)*(0.56)
	=	9.66 lbs/hr
b. Max Yearly	=	(PM Emissions)*(PM10/PM factor)

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= (75.9 ton/yr)*(0.557)
= 42.3 tons/yr

Soybean Heaters (3)

PM Emission Factor	=	0.110	lb/ton	(½ Column dryer factor - AP-42, 7/97)
PM10 Emission Factor	=	0.110	lb/ton	This assumption is based on the
PM10/PM ratio	=	1		standard dryer. In a standard
Rate/hour	=	284.14	tons	unit the first sectionof the dryer
Rate/year	=	2,489,089	tons	heats the grain. The second section
Capture efficiency	=	100	%	drives moisture from the grain
				See jet dryer for other half of emiss.

Potential PM emissions = Emission factor * process rate
from soybean heaters
a. Max Hourly = (0.11 lb/ton)*(284.14 ton/hr)
= 31.3 lbs/hr

b. Max Yearly = (31.3 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)
= 137 tons/yr

Potential PM10 emissions = (PM)*(PM10/PM factor)
from soybean heaters
a. Max Hourly = (31.3 lb/hr)*(1)
= 31.3 lbs/hr

b. Max Yearly = (PM)*(PM10/PM factor)
= (137 ton/yr)*(1)
= 137 tons/yr

Cyclone - CY20101	33,000	scfm	
Discharge total air	21,000	acfm @ 2.3% moisture and 140^{0}F	
Discharge total air	18,123	scfm	
Cyclone outlet loading	0.031	lb/min	From Crown (the manufacturer) data
Discharge outlet loading	0.020	lb/min	63.6 % discharge
Outlet loading	0.0077	grains/scf	

Max. controlled PM emiss. = Cyclone outlet grain loading * gas flow rate
from soybean heaters
a. Max Hourly = (0.0077 gr/scf)*(18,123 scfm)*(60 min/hr)
/(7,000 grains/lb)
= 1.20 lbs/hr

b. Max Yearly = (1.20 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)
= 5.26 tons/yr

Max. controlled PM10 emiss. from soybean heaters	=	(PM)*(PM10/PM factor)	
a. Max Hourly	=	(1.20 lb/hr)*(1.0)	
	=	1.20	lbs/hr
b. Max Yearly	=	(PM)*(PM10/PM factor)	
	=	(5.26 ton/yr)*(1.0)	
	=	5.26	tons/yr
Max. controlled PM emiss.	=	Cyclone PM emissions	
from soybean heaters	=	5.26	tons/yr

Soybean Jet Dryers (3)

PM Emission Factor	0.110	lb/ton
PM10 Emission Factor	0.110	lb/ton
PM10/PM ratio	1.00	
Process rate	284.14	tons/hr
Process rate	2,489,089	tons/yr

Potential PM emissions from soybean drying	=	Emission factor * process rate	
a. Max Hourly	=	(0.11 lb/ton)*(284.14 ton/hr)	
	=	31.3	lbs/hr
b. Max Yearly	=	(31.3 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	137	tons/yr
Potential PM10 emissions from soybean drying	=	(PM)*(PM10/PM factor)	
a. Max Hourly	=	(31.3 lb/hr)*(1)	
	=	31.3	lbs/hr
b. Max Yearly	=	(PM)*(PM10/PM factor)	
	=	(137 ton/yr)*(1)	
	=	137	tons/yr

The emissions from the dryer cyclones are included in the stack emissions of the hot dehulling exhaust cyclones. The emission flow rate for the dryers was based on the fax from Crown Iron Works for a 5,600 MTPD Soybean Processing Plant. Approximately 79.8% of the emissions are returned to the dryers.

Cyclones - CY 20201A & B, 20202A & B, 20203A & B	72,000	acfm/pair	3 pair

Cyclone total air	216,000	acfm		
Discharge total air	43,632	acfm @ 2.3% moisture and 140^{0}F		
Discharge total air	37,655	scfm		
Cyclone outlet loading	0.244	lb/min		
Discharge outlet loading	0.049	lb/min	20.2	% discharge
Outlet loading	0.0092	grains/scf		

Max. controlled PM emiss. from soybean drying = Cyclone outlet grain loading * gas flow rate

a. Max Hourly = (Disch. outlet loading)*(gas flow rate)*(60 min/hr) /(7,000 grains/lb)
= (.0092 gr/scf)*(37,655scfm)*(60 min/hour)/7,000 gr/lb
= 2.96 lbs/hr

b. Max Yearly = (PM lbs/hr)*(8,760 hr/year)/(2,000 lb/ton)
= (2.96 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)
= 12.9 tons/yr

Max. controlled PM10 emiss. from soybean drying = (PM)*(PM10/PM factor)

a. Max Hourly = (2.96 lb/hr)*(1.0 factor)
= 2.96 lbs/hr

b. Max Yearly = (PM)*(PM10/PM factor)
= (12.9 ton/yr)*(1.0)
= 12.9 tons/yr

Max. controlled PM emiss. from soybean drying = 12.9 tons/yr

Cracking & Dehulling

PM Emission Factor	3.6	lb/ton	(AP-42, Section 9.11.1, Table 4.5
PM10 Emission Factor	0.500	lb/ton	Vegetable Oil Processing)
PM10/PM ratio	0.139		
Wt % removed in drying	2.5	%	
Process rate	277.04	tons/hr	
Process rate	2,426,862	tons/yr	

Potential PM emissions from cracking & dehulling = Emission factor * process rate

a. Max Hourly = (3.6 lb/ton)*(277.04 ton/hr)
= 997 lbs/hr

b. Max Yearly = (3.6 lb/ton)*(2,426,862 ton/yr)/(2,000 lb/ton)

	=	4,368	tons/yr
Potential PM10 emissions from cracking & dehulling	=	(PM)*(PM10/PM factor)	
a. Max Hourly	=	(997 lb/hr)*(0.139)	
	=	139	lbs/hr
b. Max Yearly	=	(PM)*(PM10/PM factor)	
	=	(4,368 ton/yr)*(0.139)	
	=	607	tons/yr

The emissions from the steam heaters, cracking & dehulling, and secondary aspiration cyclones are included in the stack emissions of the hot dehulling exhaust cyclones. The emission flow rate for the cyclones was based on the fax from Crown Iron Works Oil for a 5,600 MTPD Soybean Processing Plant. Approximately 57.3 % of the emissions from CY20301 and CY20306 are returned to the system.

	acfm	outlet loading - lb/min		% discharge
Cyclone - CY20301	65,000	0.125		57.3
Cyclones - CY20306	65,000	0.125		57.3
Cyclone - CY20701	10,000	0.138		100
Cyclone total air	140,000	acfm		
Discharge total air	84,517	acfm @ 2.3 % moisture and 140^{0}F		
Discharge total air	72,940	scfm		
Cyclone outlet loading	0.388	lb/min	Manufacturer's data	
Discharge outlet loading	0.281	lb/min	% discharge above	
Outlet loading	0.027	grains/scf		

Max. controlled PM emiss. from cracking & dehulling	=	cyclone outlet grain loading * gas flow rate	
a. Max Hourly	=	(disch. gr/scf)*(disch. scfm)*(60 min/hour) /(7,000 grains/lb)	
	=	(0.027 gr/scf)*(72,940 scfm)*(60 min/hour) /(7,000 grains/lb)	
	=	16.9	lbs/hr
b. Max Yearly	=	(16.9 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
		74.0	tons/yr
Max. controlled PM10 emiss. from cracking & dehulling	=	(PM)*(PM10/PM factor)	
a. Max Hourly	=	(16.9 lb/hr)*(0.139)	
	=	2.35	lbs/hr
b. Max Yearly	=	(74.0 ton/yr)*(0.139)	

	=	10.3	tons/yr
Max. controlled PM emiss. from total hot dehulling (bean heaters, bean scale, jet dryers, cracking, and dehulling)	=	92.2	tons/yr
Allowable PM emiss. from	=	55.0* P0.11 - 40	lbs/hr
rule 326 IAC 6-3-2 for the	=	55.0*277.040**.11 - 40	lbs/hr
total hot dehulling (bean	=	62.1	lbs/hr
heaters, bean scale, jet dryers,	=	(62.1 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
cracking, and dehulling	=	272	tons/yr

Soybean Flake Vacuum

PM10/PM ratio	1.000	
Filter FL20803	1,500	scfm
Outlet loading	0.001	gr/scf
Clean up rate	0.060	tons/yr

Potential PM emiss. from soybean flakes spills cleanup	=	Baghouse outlet gr loading * gas flow rate	
a. Max Hourly	=	(0.001 gr/scf)*(1,500 scfm)*(60 min/hr) /(7,000 grains/lb)	
	=	0.013	lbs/hr
b. Max Yearly	=	(0.013 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	0.056	tons/yr
Potential PM10 emiss. from soybean flakes spills cleanup	=	(PM)*(PM10/PM factor)	
a. Max Hourly	=	(0.013 lb/hr)*(1.0)	
	=	0.013	lbs/hr
b. Max Yearly	=	(0.06 tons/yr)*(1.0)	
		0.056	tons/yr
Max. cont. PM emissions from soybean flakes spills cleanup	=	Potential PM emissions from soybean flakes spills cleanup	
a. Max Hourly	=	0.013	lbs/hr
b. Max Yearly	=	0.056	tons/yr
Max. cont. PM10 emissions from soybean flakes spills cleanup	=	Potential PM10 emissions soybean flakes spills cleanup	
a. Max Hourly	=	0.013	lbs/hr

b. Max Yearly	=	0.056	tons/yr
Allowable PM emiss. from	=	$4.10 * P^{0.67}$	lbs/hr
rule 326 IAC 6-3-2 for the	=	$4.10 * 0.06^{0.67}$	
soybean flakes spills cleanup	=	0.6	lbs/hr
	=	(0.6 lb/hr)*(8,760 hr/yr)/(2,000 lbs/ton)	
	=	2.73	tons/yr
State allow PM emissions	=	0.056	tons/yr

Soybean Screenings Convey

Filter FL20802	1,500	scfm
Outlet loading	0.001	gr/scf
PM10/PM Ratio	1.00	
Process wt rate	50	tons/hr

Potential PM emissions from soybean screanings convey	=	Baghouse outlet gr loading * gas flow rate	
a. Max Hourly	=	(0.001 gr/scf)*(1,500 scfm)*(60 min/hr) /(7,000 grains/lb)	
	=	0.013	lbs/hr
b. Max Yearly	=	(0.013 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	0.056	tons/yr
Potential PM10 emissions from	=	(PM)*(PM10/PM factor)	
soybean screanings convey	=	(0.013 lb/hr)*(1.0)	
a. Max Hourly	=	0.013	lbs/hr
b. Max Yearly	=	(0.056 tons/yr)*(1.0)	
		0.056	tons/yr
Max. cont. PM emissions from soybean screanings convey	=	Potential PM emissions from soybean screanings convey	
a. Max Hourly	=	0.013	lbs/hr
b. Max Yearly	=	0.056	tons/yr
Max. cont. PM10 emissions from soybean screanings convey	=	Potential PM10 emissions from soybean screanings convey	
a. Max Hourly	=	0.013	lbs/hr
b. Max Yearly	=	0.056	tons/yr

Allowable PM emiss. from	=	55.0* P0.11 - 40	lbs/hr
rule 326 IAC 6-3-2 for the	=	55.0*50**.11 - 40 lbs/hr	
soybean screanings convey	=	44.6	lbs/hr
	=	(44.6 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	195	tons/yr
State allow PM emissions	=	0.056	tons/yr

Soybean pod grinding

Rate/hour	10	tons	Grain	
Rate/year	81,058	tons	reciept %	2
Capture efficiency	100	%		
Filter FL20305	1,500	scfm		
Outlet loading	0.001	gr/scf		
PM10/PM Ratio	1.00			

Potential PM emiss. from soybean pod grinding	=	Baghouse outlet gr loading * gas flow rate	
a. Max Hourly	=	(0.001 gr/scf)*(1,500 scfm)*(60 min/hr) /(7,000 grains/lb)	
	=	0.013	lbs/hr
b. Max Yearly	=	(0.013 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	0.056	tons/yr
Potential PM10 emiss. from soybean pod grinding	=	(PM)*(PM10/PM factor)	
a. Max Hourly	=	(0.013 lb/hr)*(1.0)	
	=	0.013	lbs/hr
b. Max Yearly	=	(0.056 tons/yr)*(1.0)	
	=	0.056	tons/yr
Max. cont. PM emissions from soybean pod grinding	=	Potential PM emissions from soybean pod grinding	
a. Max Hourly	=	0.013	lbs/hr
b. Max Yearly	=	0.056	tons/yr
Max. cont. PM10 emissions from soybean pod grinding	=	Potential PM10 emissions from soybean pod grinding	
a. Max Hourly	=	0.013	lbs/hr

b. Max Yearly	=	0.056	tons/yr
Allowable PM emiss. from	=	55.0* P0.11 - 40	lbs/hr
rule 326 IAC 6-3-2 for the	=	55.0*10**.11 - 40 lbs/hr	
soybean pod grinding	=	30.9	lbs/hr
	=	(30.9 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	135	tons/yr
State allow PM emissions	=	0.056	tons/yr

Soybean Flaking

PM Emission Factor	0.370	lb/ton	(AP-42, Section 9.11.1, Table 4.5)
PM10/PM ratio	0.614	0.35/0.57	from AIRS SCC 3-02-007-88
Wt % removed in dehulling	6.0	%	
Rate/hour	260.42	tons	
Rate/year	2,281,250	tons	
Capture efficiency	100	%	

Potential PM emissions from soybean flaking	=	Emission factor * process rate	
a. Max Hourly	=	(0.37 lb/ton)*(260.42 ton/hr)	
	=	96.4	lbs/hr
b. Max Yearly	=	(96.4 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	422	tons/yr
Potential PM10 emissions from soybean flaking	=	Emission factor * process rate	
a. Max Hourly	=	(96.4 lb/hr)*(0.614)	
	=	59.2	lbs/hr
b. Max Yearly	=	(422 ton/yr)*(0.614)	
	=	259	tons/yr
Max. controlled PM emiss. from flaking system	=	Baghouse outlet grain loading * gas flow rate	

Filter - FL20401	35,000	acfm @ 2.3% moisture and 142^{0}F
	30,105	scfm
Outlet loading	0.001	gr/scf
PM10/PM Ratio	1.00	

a. Max Hourly	=	(.001 gr/scf)*(30,105scfm)*(60 min/hr)/(7,000 grs/lb)	
	=	0.258	lbs/hr

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b. Max Yearly	=	(0.258 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	1.13	tons/yr
Max. controlled PM10 emiss. from flaking system	=	(PM lb/hr)*(PM10/PM factor)	
a. Max Hourly	=	(0.256 lb/hr)*(1.0)	
	=	0.258	lbs/hr
b. Max Yearly	=	(1.13 ton/yr)*(1.0)	
		1.13	tons/yr
Allow. PM emiss. from rule	=	55.0* P**0.11 - 40	lbs/hr
326 IAC 6-3-2 for the flaking	=	55.0*260.42**0.11 - 40	lbs/hr
process	=	61.4	lbs/hr
	=	(61.4 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	269	tons/yr
Max. controlled PM emiss. from flaking system	=	1.13	tons/yr
Potential PM emissions from flaking system	=	422	tons/yr

Extractor Seal Conveying

PM Emission Factor	0.00018	lb/ton	(0.01% of the meal dryer E.F., AP-42, Section 9.11.1, Table 4.5, The emissions are much lower than from the meal dryers since the air is pulled across the the surface of flakes versus through the meal. The ventilation purpose is to pull air into the air brake to preclude hexane from from entering the extractor feed drag conveyor during periods of extractor pressurization/upset.
PM10 Emission Factor	0.00011	lb/ton	
PM10/PM ratio	0.614		
Rate/hour	260.42	tons	
Rate/year	2,281,250	tons	
Capture efficiency	100	%	

PM10/PM ratio (0.35/0.57) was taken from AIRS SCC 3-02-007-88

Potential PM emissions from flake conveying	=	Emission factor * Process rate	
a. Max Hourly	=	(0.00018 lb/ton)*(260.42 ton/hr)	
	=	0.047	lbs/hr
b. Max Yearly	=	(0.047 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	

	=	0.205	tons/yr
Potential PM10 emissions from flake conveying	=	(PM)*(PM10/PM factor)	
a. Max Hourly	=	(0.047 lb/hr)*(0.614)	
	=	0.0288	lbs/hr
b. Max Yearly	=	(PM)*(PM10/PM factor)	
	=	(0.205 ton/yr)*(0.614)	
	=	0.126	tons/yr
Max. controlled PM emiss. from soybean flake conveying	=	Potential PM emissions from flake conveying	
a. Max Hourly	=	0.047	lbs/hr
b. Max Yearly	=	Potential PM emissions from flake conveying	
	=	0.205	tons/yr
Max. controlled PM10 emiss. from soybean flake conveying	=	Potential PM10 emissions from flake conveying	
a. Max Hourly	=	0.029	lbs/hr
b. Max Yearly	=	0.126	tons/yr
Allow. PM emiss. from rule	=	55.0* P0.11 - 40 lbs/hr	
326 IAC 6-3-2 for soybean	=	55.0*260.420.11 - 40 lbs/hr	
flake conveying	=	61.4	lbs/hr
	=	(61.4 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	269	tons/yr
Max. controlled PM emiss. from flaking conveying system	=	0.205	tons/yr

DTDC Meal dryers

PM Emission Factor	1.50	lb/ton	(From SCC 30200789)	
PM10 Emission Factor	0.90	lb/ton	(Vegetable Oil Processing)	
PM10/PM ratio	0.60			
Rate/hour	213.11	tons	% of scale weight =	75
Rate/year	1,866,817	tons		

Potential PM emissions from meal drying process	=	Emission factor * Process rate
a. Max Hourly	=	(1.5 lb/ton)*(213.11 ton/hr)

	=	320	lbs/hr
b. Max Yearly	=	(1.5 lb/ton)*(1,866,817 ton/yr)/(2,000 lbs/ton)	
	=	1,400	tons/yr
Potential PM10 emissions from meal drying process	=	(PM)*(PM10/PM factor)	
a. Max Hourly	=	(320 lb/hr)*(0.60)	
		192	lbs/hr
b. Max Yearly	=	(PM)*(PM10/PM factor)	
	=	(1,400 ton/yr)*(0.60)	
	=	840	tons/yr

		Gas flow and temp.	lb/hr	scfm
Dryer Cyclone CY30301	28,400	acfm and 177^{0}F	1.079	18000
Dryer Cyclone CY30302	22,600	acfm and 140^{0}F	0.619	18000
Dryer Cyclone CY30303	22,600	acfm and 132^{0}F	0.619	18000
Dryer Cyclone CY30304	20,800	acfm and 126^{0}F	0.619	18000
Dryer Cyclone CY30305	20,800	acfm and 119^{0}F	0.619	18000
Total	115,200		3.555	90000
PM10/PM Ratio	1.00			

Max. controlled PM emiss. from meal drying process				
a. Max Hourly	=	3.56	lbs/hr	Mfr guarantee
b. Max Yearly	=	(3.56 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)		
		15.6	tons/yr	
Max. controlled PM10 emiss. from meal drying process	=	(PM)*(PM10/PM factor)		
a. Max Hourly	=	(3.56 lb/hr)*(1.0)		
	=	3.56	lbs/hr	
b. Max Yearly	=	(15.6 tons/yr)*(1.0)	tons/yr	
	=	15.6	tons/yr	
Allow. PM emiss. from rule	=	55.0* P**0.11 - 40 lbs/hr		
326 IAC 6-3-2 for the	=	55.0*213.11**0.11 - 40 lbs/hr		
meal dryer	=	59.2	lbs/hr	
	=	(59.2 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)		
	=	259	tons/yr	

DTDC Meal Cooler

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PM Emission Factor	1.80	lb/ton	(From SCC 30200789)	
PM10 Emission Factor	1.10	lb/ton	(Vegetable Oil Processing)	
PM10/PM ratio	0.61			
Rate/hr	213.11	tons	% of scale wt =	75
Rate/yr	1,866,817	tons		

Potential PM emissions from meal cooling process = Emission factor * Process rate

a. Max Hourly = (1.8 lb/ton)*(213.11 ton/hr)
= 384 lbs/hr

b. Max Yearly = (384 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)
= 1,680 tons/yr

Potential PM10 emissions from meal cooling process = (PM)*(PM10/PM factor)

a. Max Hourly = (384 lb/hr)*(0.61)
234 lbs/hr

b. Max Yearly = (PM)*(PM10/PM factor)
= (1,680 ton/yr)*(0.61)
= 1,027 tons/yr

	Gas flow and temperature		lb/hr	scfm	PM10/ PM
Cooler Cyclone CY30306	19,700	acfm and 101^0F	1.159	18,000	1.00

Max. controlled PM emiss. from meal cooling process = Vendor guarantee

a. Max Hourly = 1.16 lbs/hr

b. Max Yearly = (1.16 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)
5.08 tons/yr

Max. controlled PM10 emiss. from meal cooling process = (PM)*(PM10/PM factor)

a. Max Hourly = (1.16 lb/hr)*(1.0)
= 1.16 lbs/hr

b. Max Yearly = 5.08 tons/yr

Allow. PM emis. from rule 326 IAC 6-3-2 for the meal cooler
= 55.0* P**0.11 - 40 lbs/hr
= 55.0*213.11**0.11 - 40 lbs/hr
= 59.2 lbs/hr
= (59.2 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)
= 259 tons/yr

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Meal Sizing and Storage

Meal Conveying

PM Emission Factor	0.061	lb/ton	(AP-42, Table 9.9.1-1, 7/97)
PM10 Emission Factor	0.0340	lb/ton	
PM10/PM ratio	0.557		
Rate/hour	213.11	tons	
Rate/year	1,866,817	tons	
Capture efficiency	100	%	

Potential PM emissions	=	Emission factor * process rate	
from meal conveying	=	(0.061 lb/ton)*(213.11 ton/hour)	
a. Max Hourly	=	13	lbs/hr
b. Max Yearly	=	(13.0 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	56.9	tons/yr
Potential PM10 emissions	=	Emission factor * process rate	
from meal conveying			
a. Max Hourly	=	(PM Emissions)*(PM10/PM factor)	
	=	(13.0 lb/hr)*(0.557)	
	=	7.25	lbs/hr
b. Max Yearly	=	(PM)*(PM10/PM factor)	
	=	(56.9 ton/yr)*(0.557)	
	=	31.7	tons/yr

Meal Grinding/Screening

PM Emission Factor	3.40	lb/ton	(AP-42, Section 9.11.1, Table 4.5)
PM10 Emission Factor	2.08	lb/ton	(Vegetable Oil Processing)
PM10/PM ratio	0.611	(1.1/1.8)	From AIRS SCC No. 30200790
Rate/hour	452	tons	
Rate/year	1,866,817	tons	
Capture efficiency	100	%	

Potential PM emissions from	=	Emission factor * process rate	
from meal grind/screen			
a. Max Hourly	=	(3.4 lb/ton)*(452 ton/hr)	
	=	1537	lbs/hour
b. Max Yearly	=	(3.4 lb/ton)*(1866817ton/yr)	
	=	3,174	tons/yr

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Potential PM10 emissions from meal grind/screen	=	(PM Emissions)*(PM10/PM factor)	
a. Max Hourly	=	(1,537 lb/hr)*(0.611)	
	=	939	lbs/hr
b. Max Yearly	=	(PM Emissions)*(PM10/PM factor)	
	=	(3,174 ton/yr)*(0.611)	
	=	1,939	tons/yr
Filter - FL20501	34,000	acfm @ 2.3% moisture and 120 oF	
Filter - FL20501	30,354	scfm	
Outlet loading	0.001	gr/scf	
PM10/PM Ratio	1.00		
Max. controlled PM emiss. from meal grind/screen	=	Baghouse outlet grain loading * gas flow rate	
a. Max Hourly	=	(0.001 gr/scf)*(30,354 scfm)*(60 min/hour) /(7,000 grains/lb)	
	=	0.260	lbs/hr
b. Max Yearly	=	(0.26 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	1.14	tons/year
Max. controlled PM10 emiss. from meal grind/screen	=	(PM)*(PM10/PM factor)	
a. Max Hourly	=	(0.26 lb/hr)*(1.0)	
	=	0.260	lbs/hr
b. Max Yearly	=	(PM)*(PM10/PM factor)	
	=	(1.14 ton/yr)*(1.0)	
		1.14	tons/yr
Allow. PM emiss. from rule	=	55.0* P0.11 - 40	lbs/hr
326 IAC 6-3-2 from meal	=	55.0*213.11**0.11 - 40 lbs/hr	
grind/screen	=	67.8	lbs/hr
	=	(59.2 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	297	tons/yr
Max. controlled PM emiss. from meal sizing and screening	=	1.14	tons/yr

Meal Storage and handling

PM Emission Factor	0.270	lb/ton	(AP-42, Section 9.11.1, Table 4.5)

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PM10 Emission Factor	0.040	lb/ton	taken as the loadout process
PM10/PM ratio	0.148	(0.04/0.27)	(Vegetable Oil Processing)
Process Rate/hour	750	tons	From AIRS SCC No. 30200791
Rate/year	1,866,817	tons	
Capture efficiency	100	%	

Potential PM emissions from meal storage bins = Emission factor * process rate

a. Max Hourly = (0.27 lb/ton)*(213.11 ton/hr)
= 202.5 lbs/hr

b. Max Yearly = (0.27 lb/ton)*(1,866,817 tons/yr)
= 252 tons/yr

Potential PM10 emissions from meal storage bins = Emission factor * process rate

a. Max Hourly = (202.5 lb/hr)*(0.148)
= 30.00 lbs/hr

b. Max Yearly = (252 ton/yr)*(0.148)
= 37.3 tons/yr

Storage Legs nos. 1, 2, 3, 4, and 5

PM Emission Factor	0.061	lb/ton	(Interim AP-42, Section 9.9.1-25)
PM10 Emission Factor	0.0340	lb/ton	
PM10/PM ratio	0.557		
Rate/hour	1,500	tons	total system capacity
Rate/year	3,512,428	tons	(Meal + hulls + grain merch.)
Capture efficiency	100	%	

Potential PM emissions from storage legs = Emission factor * process rate

a. Max Hourly = (0.061 lb/ton)*(1,500 ton/hr)*2
= 91.5 lbs/hr

b. Max Yearly = (0.061 lb/ton)*(3,512,428 ton/yr)*(t/2000 lb)
= 107 tons/yr

Potential PM 10 emissions from storage legs = (PM Emissions)*(PM10/PM factor)

a. Max Hourly = (91.5 lb/hr)*(0.557)
= 51.0 lbs/hr

b. Max Yearly = (PM)*(PM10/PM factor)

	=	(107.1 ton/yr)*(0.557)	
	=	59.7	tons/yr
Filter - FL20601 & FL20602	6,000	scfm each of	2
Outlet loading	0.001	gr/scf	
PM10/PM Ratio	1.00		
Max. controlled PM emiss. from storage bins, and legs	=	Baghouses outlet grain loading * gas flow rate	
a. Max Hourly	=	(0.001 gr/scf)*(6,000 scfm)*(60 min/hour)*2 /(7,000 grains/lb)	
	=	0.103	lbs/hr
b. Max Yearly	=	(0.103 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
		0.451	tons/yr
Max. controlled PM10 emiss. from storage bins, and legs	=	(PM)*(PM10/PM factor)	
a. Max Hourly	=	(0.103 lb/hr)*(1.0)	
	=	0.103	lbs/hr
b. Max Yearly	=	(PM)*(PM10/PM factor)	
	=	(0.451 ton/yr)*(1.0)	
	=	0.451	tons/yr
Allow. PM emissions from	=	55.0* P0.11 - 40	lbs/hr
rule 326 IAC 6-3-2 for meal	=	55.0*1500**0.11 - 40	lbs/hr
storage and handling	=	83.0	lbs/hr
	=	(73.9 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	363	tons/yr
Max. controlled PM emiss. from storage bins, and loadout legs	=	0.451	tons/yr

Soybean Meal Car Vacuum

Filter FL20603	1,800	scfm	
Outlet loading	0.001	gr/scf	
PM10/PM Ratio	1		
Potential PM emiss. from Soybean Meal Car Vacuum	=	Baghouse outlet gr loading * gas flow rate	
a. Max Hourly	=	(0.001 gr/scf)*(1,800 scfm)*(60 min/hr) /(7,000 grains/lb)	
	=	0.015	lbs/hr

b. Max Yearly	=	(0.015 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	0.068	tons/yr
Potential PM10 emiss. from Soybean Meal Car Vacuum	=	(PM Emissions)*(PM10/PM factor)	
a. Max Hourly	=	(0.015 lb/hr)*(1.0)	
	=	0.015	lbs/hr
b. Max Yearly	=	(0.068 tons/yr)*(1.0)	
		0.068	tons/yr
Max. Cont. PM emiss. from soybean Meal Car Vacuum	=	Potential PM emiss. from soybean Meal Car Vacuum	
a. Max Hourly	=	0.015	lbs/hr
b. Max Yearly	=	0.068	tons/yr
Max. Cont. PM10 emiss. from soybean Meal Car Vacuum	=	Potential PM10 emiss. from soybean Meal Car Vacuum	
a. Max Hourly	=	0.015	lbs/hr
b. Max Yearly	=	0.068	tons/yr
Allowable PM emiss. from	=	55.0* P0.11 - 40	lbs/hr
rule 326 IAC 6-3-2 for the	=	55.0*100**.11 - 40 lbs/hr	
soybean Meal Car Vacuum	=	51	lbs/hr
	=	(51.3 lb/hr)*(8,760 hr/yr)/(2,000 lbs/ton)	
	=	225	tons/yr
State allow PM emissions	=	0.068	tons/yr

Kaolin Tank TK4017

PM Emission Factor	0.020	lb/ton	(May '94 draft AP-42,
PM10 Emission Factor	0.0060	lb/ton	Section 9.9.1-3)
PM10/PM ratio	0.300		
Rate/hour	20	tons	
Rate/year	9,334	tons	(0.5% of meal tons)
Capture efficiency	100	%	

Potential PM emissions from the kaolin tank	=	Emission factor * process rate	
a. Max Hourly	=	(0.02 lb/ton)*(20.0 ton/hr)	
	=	0.400	lbs/hr

b. Max Yearly	=	(0.40 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	1.75	tons/yr
Potential PM10 emissions from the kaolin tank	=	(PM Emissions)*(PM10/PM factor)	
a. Max Hourly	=	(0.40 lb/hr)*(0.3)	
	=	0.120	lbs/hr
b. Max Yearly	=	(1.75 ton/yr)*(0.3)	
	=	0.526	tons/yr
Filter FL20605	1,800	scfm	
Outlet loading	0.001	gr/scf	
PM10/PM Ratio	1.00		
Max. controlled PM emiss. from the kaolin tank	=	Baghouse outlet grain loading * gas flow rate	
a. Max Hourly	=	(0.001 gr/scf)*(1,800 scfm)*(60 min/hour) /(7,000 grains/lb)	
	=	0.015	lbs/hr
b. Max Yearly	=	(0.015 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
		0.068	tons/yr
Max. controlled PM10 emiss. from the kaolin tank	=	(PM Emissions)*(PM10/PM factor)	
a. Max Hourly	=	(0.015 lb/hr)*(1.0)	
b. Max Yearly	=	(0.068 ton/yr)*(1.0)	
	=	0.068	tons/yr
Allow. PM emiss. from rule	=	4.10*P**0.67	lbs/hr
326 IAC 6-3-2 for the	=	4.10*20.00**.67 lbs/hr	
kaolin tank	=	30.5	lbs/hr
	=	(30.5 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	134	tons/yr

Meal/Grain/Hull Loadout Process

Meal loadout: truck , rail or barge

PM Emission Factor	0.270	lb/ton	(Draft Report for AP-42,
PM10 Emission Factor	0.040	lb/ton	Section 6.11.1, Table 4.5)
PM10/PM ratio	0.148		(Vegetable Oil Processing,
Rate/hour	1,500	tons	August 10, 1993)

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Rate/year	1,866,817	tons	for barge loading through ports in hatches versus removing hatches and loading into an open barge. The air displaced is captured by the loader aspiration.
Capture efficiency	99.5	%	

Potential PM emiss. from meal loadout except fugitive emissions	=	Emission factor * process rate * (99.5/100)		
a. Max Hourly	=	(0.27 lb/ton)*(1,500 ton/hr) * (99.5/100)		
	=	403	lbs/hr	
b. Max Yearly	=	(0.27 lb/ton)*(1,866,817 ton/yr)*(99.5/100)		
	=	251	tons/yr	/(2,000 lbs/ton)
Potential PM10 emiss. from meal loadout except fugitive emissions	=	(PM Emissions)*(PM10/PM factor)		
a. Max Hourly	=	(403 lb/hr)*(0.148)		
	=	59.7	lbs/hr	
b. Max Yearly	=	(251 ton/yr)*(0.148)		
	=	37.1	tons/yr	
Potential fugitive PM emiss. from meal loadout	=	Emission factor *process rate *(100-99.5)/100		
a. Max Hourly	=	(0.27 lb/ton)*(1,500 ton/hr) * (100-99.5)/100		
	=	2.03	lbs/hr	
b. Max Yearly	=	(0.27 lb/ton)*(1,817,035 ton/yr)/(2,000 lbs/ton) * (100-99.5)/100		
	=	1.26	tons/yr	
Potential fugitive PM10 emiss.	=	(PM Emissions)*(PM10/PM factor)		
from meal loadout	=	(2.03 lb/hr)*(0.148)		
a. Max Hourly	=	0.300	lbs/hr	
b. Max Yearly	=	(1.26 ton/yr)*(0.148)		
	=	0.187	tons/yr	

Hull/grain barge loadout

PM Emission Factor	0.160	lb/ton	(Interim AP-42, Section 9.9.1-23, Table 9.9.1-2)
PM10 Emission Factor	0.100	lb/ton	
PM10/PM ratio	0.625		

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Rate/hour	1,200	tons
Rate/year	1,645,612	(1,500,000 grain+145,612 hull) tons/yr
Capture efficiency	99.50	%

Potential PM emissions from hull/grain barge loadout = Emission factor * process rate * (99.5/100)

a. Max Hourly = (0.16 lb/ton)*(1,200 ton/hr) * (99.5/100)
= 191 lbs/hr

b. Max Yearly = (0.16 lb/ton)*(1,645,612 ton/yr) * (99.5/100)/(2,000 lbs/ton)
= 131 tons/yr

Potential PM10 emiss. from hull/grain barge loadout = (PM Emissions)*(PM10/PM factor)

a. Max Hourly = (191 lb/hr)*(0.625)
= 119.4 tons/yr

b. Max Yearly = (131 ton/yr)*(0.625)
= 81.9 tons/yr

Potential fugitive PM emiss. from hull/grain barge loadout = Emission factor *process rate*(100-99.5)/100

a. Max Hourly = (0.16 lb/ton)*(1,200 ton/hr)*(100-99.5)/100
= 0.960 lbs/hr

b. Max Yearly = (0.16 lb/ton)*(1,645,612 ton/yr) *((100-99.5)/100)/(2,000 lbs/ton)
= 0.658 tons/yr

Potential fugitive PM10 emiss. hull/grain barge loadout = (PM Emissions)*(PM10/PM factor)

a. Max Hourly = (0.6 lb/hr)*(0.96)
= 0.600 lbs/hr

b. Max Yearly = (PM Emissions)*(PM10/PM factor)
= (0.658 ton/yr)*(0.625)
= 0.411 tons/yr

Barge loading Conveying

Conveying rate	40,000	bu/hr	Draft AP-42,
PM Emission Factor	0.061	lb/ton	table 9.9-1, July 1997
PM10 Emission Factor	0.034	lb/ton	
PM10/PM ratio	0.557		

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Unloading rate/hour	1,200	tons	
Unloading rate/year	5,256,000		Loading & transfer points are
Capture efficiency	95	%	covered and enclosed.

Half of the PM/PM10 emissions is for unloading and half from loading.

Potential PM emissions from grain conveying except fug. emissions	=	Emiss. factor*process rate*capture eff./100	
	=	(0.061 lb/ton)*(1,200 tons/hr)*(95/100)	
a. Max Hourly	=	69.5	lbs/hr
b. Max Yearly	=	(0.061 lb/ton)*(5,256,000 tons/hr)*0.5*(95/100)	
	=	76.1	tons/yr
Potential PM10 emissions from grain conveying except fug. emissions	=	(PM Emissions)*(PM10/PM factor)	
	=	(69.5 lbs/hr)*0.557	
a. Max Hourly	=	38.7	lbs/hr
b. Max Yearly	=	(76.1 tons/yr)*0.557	
	=	42.4	tons/yr
Potential fug. PM emissions from grain conveying	=	Emiss. factor*process rate*(1-capture eff./100)	
a. Max Hourly	=	(0.061 lb/ton)*(1,200 tons/hr)*(1-95/100)	
	=	3.660	lbs/hr
b. Max Yearly	=	(0.061 lb/ton)*(5,256,000 tons/yr)* 0.5(1-95/100)/2000	
	=	4.01	tons/yr
Potential fug. PM10 emissions from grain conveying	=	(PM Emissions)*(PM10/PM factor)	
a. Max Hourly	=	(3.66 lbs/hr)*0.557	
	=	2.04	lbs/hr
b. Max Yearly	=	(4.01 tons/yr)*0.557	
	=	2.23	tons/yr

Hull/grain truck or rail loadout

PM Emission Factor	0.086	lb/ton	(AP-42, Table 9.9.1-1, 7/97)
PM10 Emission Factor	0.029	lb/ton	
PM10/PM ratio	0.337		
Rate/hour	1,200	tons	
Rate/year	1,645,612	(1,500,000+145,612) tons/yr	
Capture efficiency	99	%	

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Potential PM emiss. from hull/grain truck or rail loadout	=	Emission factor * process rate *(99/100)
a. Max Hourly	=	(0.086 lb/ton)*(1,200 ton/hr) * (99/100)
	=	102.2 lbs/hr
b. Max Yearly	=	(0.086 lb/ton)*(1,645,612 ton/yr) * (99/100)/(2,000 lbs/ton)
	=	70.1 tons/yr
Potential PM10 emiss. from hull/grain truck or rail loadout	=	(PM Emissions)*(PM10/PM factor)
a. Max Hourly	=	(102.2 lb/hr)*(0.337 factor)
	=	34.5 lbs/hr
b. Max Yearly	=	(70.1 ton/yr)*(0.337)
	=	23.6 tons/yr
Pot. fugitive PM emiss. from hull/grain truck or rail loadout	=	Emission factor * process rate * (100-99)/100
a. Max Hourly	=	(0.086 lb/ton)*(1,200 ton/hr)*(100-99)/100
	=	1.03 lbs/hr
b. Max Yearly	=	(0.086 lb/ton)*(1,645,612 ton/hr) * ((100-99)/100)/(2,000 lbs/ton)
	=	0.708 tons/yr
Potential fugitive PM10 emiss. from hull/grain truck or rail loadout	=	(PM Emissions)*(PM10/PM factor)
a. Max Hourly	=	(1.03 lb/hr)*(0.337)
	=	0.348 lbs/hr
b. Max Yearly	=	(PM Emissions)*(PM10/PM factor)
	=	(0.708 ton/yr)*(0.337)
	=	0.239 tons/yr
Max. controlled PM emiss. from hull/grain truck or rail loadout	=	Baghouse outlet grain loading * gas flow rate

Filter - DF18A	29,000	scfm
Filter - DF18B	28,500	scfm
Total:	57,500	scfm
Outlet loading	0.001	gr/scf
PM10/PM Ratio	1.00	

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a. Max Hourly	=	(0.001 gr/scf)*(57,500scfm)*(60 min/hr) /(7,000 grains/lb)	
	=	0.493	lbs/hr
b. Max Yearly	=	(0.493 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	2.16	tons/yr
Max. controlled PM10 emiss. from hull/grain truck or rail loadout	=	(PM Emissions)*(PM10/PM factor)	
a. Max Hourly	=	(0.493 lb/hr)*(1.0)	
	=	0.493	lbs/hr
b. Max Yearly	=	(PM Emissions)*(PM10/PM factor)	
	=	(2.16 ton/yr)*(1.0)	
	=	2.16	tons/yr
Maximum controlled PM emiss. from barge load out without fugitive emissions	=	Filter (DF5) outlet grain loading*gas flow rate (.001 gr/scf)*(6,650 scfm)*(60 mts/hr)/(7,000 grs/lb)	
	=	0.057	lbs/hr
	=	(0.194 lbs/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	0.250	tons/yr
Maximum controlled PM10	=	Max. cont. PM Emiss. * (PM10/PM factor)	
emiss. from barge load out	=	(0.194 lb/hr)*(1)	
without fugitive emissions	=	0.057	lb/hr
	=	(0.194 lbs/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	0.250	tons/yr
Max. controlled PM emissions from load out	=	7.12	tons/yr
Allow. PM emiss. from rule	=	55.0* P0.11 - 40 lbs/hr	
326 IAC 6-3-2 for loadout	=	55.0*750**0.11 - 40 lbs/hr	
process	=	80.0	lbs/hr
	=	(73.9 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	350	tons/yr

Hull grinder surge bin

PM Emission Factor	0.020	lb/ton	(Table 9.9.1-3, Draft AP-42,
PM10 Emission Factor	0.005	lb/ton	May 1994)
PM10/PM ratio	0.250		
Loading rate/hr	16.62	tons	
Loading rate/yr	145,612	tons% crush=	6

Potential PM emissions from hull bin loading	=	Emission factor * process rate
a. Max Hourly	=	(0.02 lb/ton)*(16.62 ton/hr)
	=	0.332 lbs/hr
b. Max Yearly	=	(0.02 lb/ton)*(145,612 ton/yr)/(2,000 lbs/ton)
	=	1.46 tons/yr
Potential PM10 emissions from hull bin loading	=	(PM Emissions)*(PM10/PM factor)
a. Max Hourly	=	(0.332 lb/hr)*(0.25)
	=	0.083 lbs/hr
b. Max Yearly	=	(PM Emissions)*(PM10/PM factor)
	=	(1.46 ton/yr)*(0.25)
	=	0.364 tons/yr
Filter - FL20801	8,000	acfm @ 2.3% moisture and 80 oF
	7,671	scfm
Outlet loading	0.001	gr/scf
PM10/PM Ratio	1.00	
Maximum controlled PM emiss. from hull bin loading	=	Baghouse outlet grain loading * gas flow rate
a. Max Hourly	=	(0.001 gr/scf)*(7,671 scfm)*(60 min/hr) /(7,000 grains/lb)
	=	0.066 lbs/hr
b. Max Yearly	=	(0.066 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)
	=	0.288 tons/yr
Maximum controlled PM10 emiss. from hull bin loading	=	(PM Emissions)*(PM10/PM factor)
a. Max Hourly	=	(0.066 lb/hr)*(1.0)
	=	0.066 lbs/hr
b. Max Yearly	=	(PM Emissions)*(PM10/PM factor)
	=	(0.288 ton/yr)*(1)
	=	0.288 tons/yr
Allow. PM emiss. from rule IAC 6-3-2 for the hull bin loading process	=	4.10*P0.67 lbs/hr
	=	4.10*16.62**0.67 lbs/hr
	=	27.0 lbs/hr
	=	(27.0 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)
	=	118 tons/yr

Max. PM emissions from	=	filter PM emissions		
the hull bin loading process	=	0.288	tons/yr	

Hull grinding & handling

Hull grinding

PM Emission Factor	2.00	lb/ton	(AP-42, Section 9.11.1, Table 4.5)	
PM10 Emission Factor	1.2	lb/ton	(Vegetable Oil Processing)	
PM10/PM ratio	0.60			
Rate/hr	250	tons		
Rate/yr	145,612	tons	% of crush	6.0

Potential PM emiss.	=	Emission factor * process rate	
from hull grinding			
a. Max Hourly	=	(2.0 lb/ton)*(250 ton/hr)	
	=	500	lbs/hr
b. Max Yearly	=	(2.0 lb/ton)*(145,612 ton/yr)/(2,000 lbs/ton)	
	=	146	tons/yr
Potential PM10 emissions	=	(PM)*(PM10/PM factor)	
from hull grinding			
a. Max Hourly	=	(500 lb/hr)*(0.60)	
	=	300	lbs/hr
b. Max Yearly	=	(146 ton/yr)*(0.60)	
	=	87.4	tons/yr

Ground hull/hull pellet storage bins

PM Emission Factor	0.020	lb/ton	(May '94 draft AP-42,
PM10 Emission Factor	0.005	lb/ton	Section 9.9.1-3)
PM10/PM ratio	0.250		
Rate/hour	250	tons	
Rate/year	145,612	tons	
Capture efficiency	100	%	

Potential PM emissions	=	Emission factor * process rate	
from the hull storage bins			
a. Max Hourly	=	(0.02 lb/ton)*(250 ton/hr)	
	=	5.00	lbs/hour
b. Max Yearly	=	(0.02 lb/ton)*(145,612 ton/yr)/(2,000 lbs/ton)	

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	=	1.46	tons/yr
Potential PM10 emissions from the hull storage bins	=	(PM)*(PM10/PM factor)	
a. Max Hourly	=	(5 lb/hr)*(0.25)	
	=	1.25	lbs/hr
b. Max Yearly	=	(1.46 ton/yr)*(0.25)	
	=	0.364	tons/yr
Filter - FL20903	20,000	acfm at 2.3% moisture and 180^{0}F	
Filter - FL20903	16,182	scfm	
Outlet loading	0.001	gr/scf	
PM10/PM Ratio	1.00		
Maximum controlled PM emissions from hull storage bins	=	Baghouse outlet grain loading * gas flow rate	
a. Max Hourly	=	(0.001 gr/scf)*(16,182 scfm)*(60 min/hr) /(7,000 grains/lb)	
	=	0.139	lbs/hr
b. Max Yearly	=	(0.139 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
		0.608	tons/yr
Maximum controlled PM10 emissions from hull storage bins	=	(PM)*(PM10/PM factor)	
a. Max Hourly	=	(0.139 lb/hr)*(1.0)	
	=	0.139	lbs/hr
b. Max Yearly	=	(0.608 ton/yr)*(1.0)	
	=	0.608	tons/yr
Allow. PM emiss. from rule	=	55*250**0.11-40	lbs/hr
326 IAC 6-3-2 for hull grinding	=	61.0	lbs/hr
	=	(61 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	267	tons/yr
Max. controlled PM emiss.	=	Filter PM emissions	
from the hull grinding process	=	0.608	tons/yr

Hull Pellet Cooling

PM Emission Factor	0.140	lb/ton	(11/95 draft AP-42,
PM10 Emission Factor	0.070	lb/ton	Table 9.9.1-3)
PM10/PM ratio	0.500		
Rate/hour	30	tons	

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Rate/year	145,612	tons	
Capture efficiency	100	%	
Potential PM emissions from hull pellet cooling	=	Emission factor * process rate	
a. Max Hourly	=	(0.14 lb/ton)*(30 ton/hr)	
	=	4.20	lbs/hr
b. Max Yearly	=	(0.14 lb/ton)*(145,612 tons/yr)/(2,000 lbs/ton)	
	=	10.2	tons/yr
Potential PM10 emissions from hull pellet cooling	=	(PM Emissions)*(PM10/PM factor)	
a. Max Hourly	=	(4.2 lb/hr)*(0.5)	
	=	2.10	lbs/hr
b. Max Yearly	=	(PM Emissions)*(PM10/PM factor)	
	=	(10.2 ton/yr)*(0.5)	
	=	5.10	tons/yr
Maximum controlled PM emiss. from hull pellet cooling	=	Cyclone outlet grain loading * gas flow rate	
Cyclone - CY20901	14,000	acfm	acfm @ 3.2% moisture
	11,660	scfm	and 160^{0}F
Outlet loading	0.005	gr/scf	Vendor guarantee
PM10/PM Ratio	0.50		
a. Max Hourly	=	(0.005 gr/scf)*(11,660 scfm)*(60 min/hr) /(7,000 grains/lb)	
	=	0.500	lbs/hour
b. Max Yearly	=	(0.50 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	2.19	tons/yr
Maximum controlled PM10 emiss. from hull pellet cooling	=	(PM Emissions)*(PM10/PM factor)	
a. Max Hourly	=	(0.50 lb/hr)*(0.5)	
	=	0.250	lbs/hr
b. Max Yearly	=	(2.19 ton/yr)*(0.5)	
	=	1.09	tons/yr
Allow. PM emiss. from rule	=	4.10*P**0.67 lbs/hr	
326 IAC 6-3-2 for hull	=	4.10*30**0.67 lbs/hr	
pellet cooling	=	40.0	lbs/hr

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	=	(40.0 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	175	tons/yr
Max. PM emiss. from the hull pellet cooling process	=	2.19	tons/yr

Lecithin Processing

Lecithin dryer

Air passing through the steel mesh belt drives acetone from the granulated lecithin (phosphotides and from soybean oil). Acetone, a non regulated solvent, is collected for recycle in carbon bed absorbers. Any trace PM exiting the dryer in the acetone/air exhaust will be collected on the carbon.

PM Emission Factor	1.00	lb/ton	From engineering judgement
PM10/PM ratio	1.00		
Rate/hour	1.00	ton	
Rate/year	8,760	tons	
Capture efficiency	100	%	

Potential PM emissions from granulated lecithin process	=	Emission factor * process rate	
a. Max Hourly	=	(1.00 lb/ton)*(1.0 ton/hr)	
	=	1.00	lbs/hr
b. Max Yearly	=	(1.00 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	4.38	tons/yr
Potential PM10 emissions from granulated lecithin process	=	Emission factor * process rate	
a. Max Hourly	=	(1.0 lb/hr)*(1.0)	
	=	1.00	lbs/hr
b. Max Yearly	=	(4.38 ton/yr)*(1.0)	
	=	4.38	tons/yr

Filter - CY41501	4,000	acfm @ 2.3% moisture and 120^{0}F
Total discharge air	3,571	scfm
Outlet loading	0.001	grains/scf
PM10/PM ratio	1.00	

Max. cont. PM emiss. from the granulated lecithin process	=	Filter outlet grain loading * gas flow rate	
a. Max Hourly	=	(.001 gr/scf)*(3,571scfm)*(60 min/hr) /(7,000 grains/lb)	
	=	0.031	lbs/hr

b. Max Yearly	=	(0.031 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
		0.134	tons/yr
Max. cont. PM10 emiss. from granulated lecithin process	=	(PM Emissions)*(PM10/PM factor)	
a. Max Hourly	=	(0.031 lb/hr)*(1)	
	=	0.031	lbs/hr
b. Max Yearly	=	(0.134 ton/yr)*(1)	
	=	0.134	tons/yr
Allow. PM emiss. from rule	=	4.10*P**0.67	lbs/hr
326 IAC 6-3-2 for granulated	=	4.10*1.0**0.67	lbs/hr
lecithin process	=	4.10	lbs/hr
	=	(4.1 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	18.0	tons/yr
Max. PM emiss. from the granulated lecithin process	=	0.134	tons/yr

Diatomaceous Earth (DE) Silo - TK41702

PM Emission Factor	0.020	lb/ton	SCC 30501108
PM Emission Factor	0.020	lb/ton	Loading of cement
PM10/PM ratio	1.000		
Rate/hour	20	tons	
Rate/year	671	tons	
Capture efficiency	100	%	

Potential PM emissions from the DE silo	=	Emission factor * process rate	
a. Max Hourly	=	(0.02 lb/ton)*(20 ton/hr)	
	=	0.400	lbs/hr
b. Max Yearly	=	(0.02 lb/hr)*(671 tons/yr)/(2,000 lb/ton)	
	=	0.007	tons/yr
Potential PM10 emissions from the DE silo	=	Emission factor * process rate	
a. Max Hourly	=	(PM Emissions)*(PM10/PM factor)	
	=	0.400	lbs/hr
b. Max Yearly	=	(PM)*(PM10/PM factor)	

	=	0.007	tons/yr
Filter	1,870	scfm	
Outlet loading	0.001	gr/scf	
PM10/PM Ratio	1.00		
Max. controlled PM emiss. from the DE silo	=	Baghouse outlet grain loading * gas flow rate	
a. Max Hourly	=	(0.001 gr/scf)*(1,870 scfm)*(60 min/hour) /(7,000 grains/lb)	
	=	0.016	lbs/hr
b. Max Yearly	=	(0.016 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	0.070	tons/yr
Max. PM10 emissions from the DE silo	=	(PM)*(PM10/PM factor)	
a. Max Hourly	=	(0.016 lb/hr)*(1)	
	=	0.016	lbs/hr
b. Max Yearly	=	(0.07 ton/yr)*(1)	
	=	0.070	tons/yr
Allow. PM emiss. from rule	=	4.10*P**0.67	lbs/hr
326 IAC 6-3-2 for the	=	4.10*20**0.67 lbs/hr	
DE silo	=	30.5	lbs/hr
	=	(30.5 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	134	tons/yr
Max. PM emissions from	=	Filter PM emissions	
the DE silo	=	0.070	tons/yr

DE Bulk Bag Unloading - ME50304

PM Emission Factor	0.020	lb/ton	SCC 30501108
PM10 Emission Factor	0.020	lb/ton	Loading of cement
PM10/PM	1.000		
Rate/hour	0.111	tons	
Rate/year	484	tons	
Capture efficiency	100	%	
Potential PM emissions from bag unloading	=	Emis. factor * process rate * capture eff.	
a. Max Hourly	=	(0.02 lb/ton)*(0.11 ton/hr)*100/100)	
	=	0.002	lbs/hr

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b. Max Yearly	=	(0.02 lb/ton)*(484 ton/yr)*(100/100)/(2,000 lb/ton)	
	=	0.005	tons/yr
Potential PM10 emissions from bag unloading	=	(PM)*(PM10/PM factor)	
a. Max Hourly	=	(0.002 lb/hr)*(1)	
	=	0.002	lbs/hr
b. Max Yearly	=	(0.005 ton/yr)*(1)	
	=	0.005	tons/yr
Allow. PM emiss. from rule 326 IAC 6-3-2 for bag unloading	=	4.10*P**0.67	lbs/hr
	=	4.10*0.111**0.67	lbs/hr
	=	0.937	lbs/hr
	=	(0.937 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	4.11	tons/yr
Maximum PM emissions from the bag unloading	=	0.005	tons/yr

Silica bag unloading - ME50101

PM Emission Factor	0.020	lb/ton	SCC 30501108
PM10 Emission Factor	0.020	lb/ton	Loading of cement
PM10/PM ratio	1.000		
Rate/hour	0.027	tons	
Rate/year	236.3	tons	

Potential PM emissions from silica bag unloading	=	Emission factor * process rate	
a. Max Hourly	=	(0.02 lb/ton)*(0.027 ton/hr)	
	=	0.0005	lbs/hr
b. Max Yearly	=	(0.02 lb/ton)*(236.3 ton/yr)/(2,000 lb/ton)	
	=	0.002	tons/yr
Potential PM10 emissions from silica bag unloading	=	(PM Emissions)*(PM10/PM factor)	
a. Max Hourly	=	(0.0005 lb/hr)*(1)	
	=	0.0005	lbs/hr
b. Max Yearly	=	(0.002 ton/yr)*(1)	
	=	0.002	tons/yr

Allow. PM emiss. from rule	=	4.10*P**0.67	lbs/hr
326 IAC 6-3-2 for silica	=	4.10*0.027**0.67	lbs/hr
bag unloading	=	0.365	lbs/hr
	=	(0.365 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	1.60	tons/yr
Max. controlled PM emiss.	=	Potential PM emissions	
from the silica bag	=	0.002	tons/yr
unloading process			

The spent silica contains sufficient oil (>20%) to preclude dusting when dropped from the filter.

DE Bulk Bag Unloading - ME50201

PM Emission Factor	0.020	lb/ton	SCC 30501108
PM Emission Factor	0.020	lb/ton	Loading of cement
PM10/PM ratio	1.000		
Rate/hour	0.0085	tons (based on use 50 % of the time)	
Rate/year	37.41	tons	
Capture efficiency	100	%	

Potential PM emiss. from	=	Emis. factor * process rate * capture eff.		
from bag unloading				
a. Max Hourly	=	(0.02 lb/ton)*(0.0085 ton/hr)*(100/100)		
	=	0.00017	lbs/hr	
b. Max Yearly	=	(0.02 lb/ton)*(37.41 ton/yr)*(100/100)		
	=	0.0004	tons/yr	/(2,000 lb/ton)
Potential PM10 emissions	=	(PM Emissions)*(PM10/PM factor)		
from bag unloading				
a. Max Hourly	=	(0.00017 lb/hr)*(1)		
	=	0.00017	lbs/hr	
b. Max Yearly	=	(PM Emissions)*(PM10/PM factor)		
	=	(0.0004 ton/yr)*(1)		
	=	0.0004	tons/yr	
Allow. PM emiss. from rule	=	4.10*P**0.67	lbs/hr	
326 IAC 6-3-2 for day	=	4.10*0.0085**0.67	lbs/hr	
tank loading	=	0.169	lbs/hr	
	=	(0.17 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)		
	=	0.739	tons/yr	
Maximum PM emiss. from	=	0.0004	tons/yr	

the day tank loading

Carbon bag unloading - ME50202

PM Emission Factor	0.020	lb/ton	SCC 30501108
PM10 Emission Factor	0.020	lb/ton	Loading of cement
PM10/PM ratio	1.000		
Rate/hour	0.0043	tons	
Rate/year	37.41	tons	

Potential PM emiss. from carbon bag unloading	=	Emission factor * process rate	
a. Max Hourly	=	(0.02 lb/ton)*(0.0043 ton/hr)	
	=	0.0001	lbs/hr
b. Max Yearly	=	(0.02 lb/ton)*(37.41 ton/yr)/(2,000 lb/ton)	
	=	0.0004	tons/yr
Potential PM10 emiss. from carbon bag unloading	=	(PM)*(PM10/PM factor)	
a. Max Hourly	=	(0.0001 lb/hr)*(1)	
	=	0.00009	lbs/hr
b. Max Yearly	=	(37.41 ton/yr)*(1)	
	=	0.0004	tons/yr
Allow. PM emiss. from rule	=	4.10*P**0.67	lbs/hr
326 IAC 6-3-2 for carbon	=	4.10*0.0043**0.67	lbs/hr
bag unloading	=	0.106	lbs/hr
	=	(0.106 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	0.464	tons/yr

The spent silica contains sufficient oil (>20%) to preclude dusting when dropped from the filter. Additional oil is added in the mixer to create an oil slurry.

DE Bulk Bag Unloading - ME50301

PM Emission Factor	0.020	lb/ton	SCC 30501108
PM10 Emission Factor	0.020	lb/ton	Loading of cement
PM10/PM ratio	1.000		
Rate/hour	0.034	tons	(based on use 50 % of the time)
Rate/year	149.63	tons	

Potential PM emiss. from DE bag unloading	=	Emission factor * process rate

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a. Max Hourly	=	(0.02 lb/ton)*(0.034 ton/hr)	
	=	0.001	lbs/hr
b. Max Yearly	=	(0.02 lb/ton)*(149.63 ton/yr)/(2,000 lb/ton)	
	=	0.0015	tons/yr
Potential PM10 emiss. from DE bag unloading	=	(PM Emissions)*(PM10/PM factor)	
a. Max Hourly	=	(0.001 lb/hr)*(1)	
	=	0.0007	lbs/hr
b. Max Yearly	=	(PM)*(PM10/PM factor)	
	=	0.0015	tons/yr
Allow. PM emiss. from rule	=	4.10*P**0.67	lbs/hr
326 IAC 6-3-2 for DE bag	=	4.10*0.034**0.67	lbs/hr
unloading	=	0.43	lbs/hr
	=	(0.43 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	1.87	tons/yr
Max. PM emissions from DE bag unloading process	=	0.0015	tons/yr

Nickel catalyst bag unloading - ME50303A & B

PM Emission Factor	0.02	lb/ton	SCC 30501108
PM10 Emission Factor	0.02	lb/ton	Loading of cement
PM10/PM ratio	1.00		
Rate/hour	0.0171	tons	
Rate/year	149.63	tons	

Potential PM emis. from nickel catalyst bag unloading	=	Emission factor * process rate * 2	
a. Max Hourly	=	(0.02 lb/ton)*(0.0171 ton/hr)*2	
	=	0.001	lbs/hr
b. Max Yearly	=	(0.02 lb/ton)*(149.63 ton/yr)/(2,000 lb/ton)*2	
	=	0.003	tons/yr
Potential PM10 emiss. from nickel catalyst bag unloading	=	(PM)*(PM10/PM factor)	
a. Max Hourly	=	(0.001 lb/hr)*(1)	
	=	0.001	lbs/hr
b. Max Yearly	=	(0.003 ton/yr)*(1)	
	=	0.003	tons/yr

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Allow. PM emiss. from rule	=	4.10*P**0.67	lbs/hr
326 IAC 6-3-2 for nickel catalyst	=	4.10*0.02**0.67	lbs/hr
bag unloading	=	0.268	lbs/hr
	=	(0.268 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	1.18	tons/yr

Bleaching clay silo - TK51104

PM Emission Factor	0.020	lb/ton	SCC 30501108
PM10 Emission Factor	0.020	lb/ton	Loading of cement
PM10/PM	1.000		
Rate/hour	20	tons	
Rate/year	845	tons	
Filter	1,870	scfm	
Outlet loading	0.001	gr/scf	
PM10/PM - filter	1		

Potential PM emissions from bleaching clay silo loading	=	Emission factor * process rate	
a. Max Hourly	=	(0.02 lb/ton)*(20 ton/hr)	
	=	0.400	lbs/hr
b. Max Yearly	=	(0.02 lb/ton)*(845 ton/hr)/(2,000 lbs/ton)	
	=	0.008	tons/yr
Potential PM10 emiss. from bleaching clay silo loading	=	Emission factor * process rate	
a. Max Hourly	=	(0.4 lb/hr)*(1)	
	=	0.400	lbs/hr
b. Max Yearly	=	(0.008 ton/yr)*(1)	
	=	0.008	tons/yr
Max. controlled PM emiss. bleaching clay silo loading	=	Baghouse outlet grain loading * gas flow rate	
a. Max Hourly	=	.001 gr/scf*1,870 scfm *60 min/hr /7,000 grs/lb	
	=	0.016	lbs/hr
b. Max Yearly	=	(0.016 lb/hr)*(845/20 hrs/yr)/(2,000 lb/ton)	
	=	0.0003	tons/yr
Max. controlled PM10 emiss. from bleaching clay silo loading	=	(PM Emissions)*(PM10/PM factor)	
a. Max Hourly	=	(0.016 lb/hr)*(1)	

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	=	0.016	lbs/hr
b. Max Yearly	=	(0.0003 ton/yr)*(1)	
		0.0003	tons/yr
Allow. PM emiss. from rule	=	4.10* P**0.67	lbs/hr
326 IAC 6-3-2 for bleaching	=	4.10*20**0.67	lbs/hr
clay silo loading	=	30.5	lbs/hr
	=	30.5 lbs/hr*(8,760 hr/yr)/(2,000 lb/ton)	
	=	134	tons/yr
Max. controlled PM emiss. from bleaching clay silo loading	=	0.00034	tons/yr

Citric Acid Bag Unloading - ME51101

PM Emission Factor	0.020	lb/ton	SCC 30501108
PM10 Emission Factor	0.020	lb/ton	Loading of cement
PM10/PM ratio	1.000		
Rate/hour	0.193	tons	
Rate/year	845.31	tons	

Potential PM emissions from citric acid bag unloading	=	Emission factor * process rate	
a. Max Hourly	=	(0.02 lb/ton)*(0.19 ton/hr)	
	=	0.004	lbs/hr
b. Max Yearly	=	(0.02 lb/ton)*(845.31 ton/yr)/(2,000 lbs/ton)	
	=	0.0085	tons/yr
Potential PM10 emissions from citric acid bag unloading	=	(PM Emissions)*(PM10/PM factor)	
a. Max Hourly	=	(0.004 lb/hr)*(1)	
	=	0.0039	lbs/hr
b. Max Yearly	=	(0.008 ton/yr)*(1)	
	=	0.0085	tons/yr
Allowable PM emis. from rule	=	4.10*P**0.67	lbs/hr
326 IAC 6-3-2 for citric acid	=	4.10*0.19**0.67	lbs/hr
bag unloading	=	1.36	lbs/hr
	=	(1.36 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	5.96	tons/yr
Max. controlled PM emiss.	=	0.008	tons/yr

from bag unloading

DE Bulk Bag Unloading - ME50305

PM Emission Factor	0.020	lbs/ton	SCC 30501108
PM10 Emission Factor	0.020	lbs/ton	Loading of cement
PM10/PM ratio	1.000		
Rate/hour	0.110	tons	
Rate/year	484	tons	

Potential PM emissions from citric acid bag unloading	=	Emission factor * process rate	
a. Max Hourly	=	0.02 lbs/ton)*(0.11 ton/hr)*(100/100)	
	=	0.002	lbs/hr
b. Max Yearly	=	(0.02 lbs/ton)*(484 ton/yr)/(2000 lbs/ton)	
	=	0.005	tons/yr
Potential PM10 emissions from citric acid bag unloading	=	(PM Emissions)*(PM10/PM factor)	
a. Max Hourly	=	(0.002 lbs/hr)*(1)	
	=	0.0022	lbs/hr
b. Max Yearly	=	(0.005 tons/yr)*(1)	
	=	0.005	tons/yr
Allowable PM emis. from rule	=	4.10*P**0.67	lbs/hr
326 IAC 6-3-2 for citric acid	=	4.10*0.11**0.67	lbs/hr
bag unloading	=	0.93	lbs/hr
	=	(0.93 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	4.09	tons/yr
Max. controlled PM emiss. from bag unloading	=	0.005	tons/yr

DE Bulk Bag Unloading - ME52401

PM Emission Factor	0.020	lb/ton	SCC 30501108
PM10 Emission Factor	0.020	lb/ton	Loading of cement
PM10/PM ratio	1.000		
Rate/hour	0.110	tons	
Rate/year	484	tons	

Potential PM emissions from citric acid bag unloading	=	Emission factor * process rate*capture efficiency

a. Max Hourly	=	(0.02 lb/ton)*(0.19 ton/hr)*(100/100)
	=	0.002 lbs/hr
b. Max Yearly	=	(0.02 lb/ton)*(484 ton/yr)*(100/100)/(2,000 lbs/ton)
	=	0.005 tons/yr
Potential PM10 emissions from citric acid bag unloading	=	(PM Emissions)*(PM10/PM factor)
a. Max Hourly	=	(0.002 lbs/hr)*(1)
	=	0.002 lbs/hr
b. Max Yearly	=	(0.005 tons/yr)*1
	=	0.005 tons/yr
Allowable PM emis. from rule	=	4.10*P**0.67 lbs/hr
326 IAC 6-3-2 for citric acid	=	4.10*0.11**0.67 lbs/hr
bag unloading	=	0.93 lbs/hr
	=	(0.93 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)
	=	4.09 tons/yr
Max. controlled PM emiss. from bag unloading	=	0.005 tons/yr

DE Bulk Bag Unloading - ME52301

PM Emission Factor	0.020	lb/ton	SCC 30501108
PM10 Emission Factor	0.020	lb/ton	Loading of cement
PM10/PM ratio	1.000		
Rate/hour	0.110	tons	
Rate/year	484	tons	

Potential PM emissions from citric acid bag unloading	=	Emission factor * process rate*capture efficiency
a. Max Hourly	=	(0.02 lb/ton)*(0.19 ton/hr)*(100/100)
	=	0.002 lbs/hr
b. Max Yearly	=	(0.02 lb/ton)*(484 ton/yr)*(100/100)
	=	0.005 tons/yr (/2,000 lbs/ton)
Potential PM10 emissions from citric acid bag unloading	=	(PM Emissions)*(PM10/PM factor)
a. Max Hourly	=	(0.002 lbs/hr)*(1)
	=	0.002 lbs/hr
b. Max Yearly	=	(0.005 tons/yr)*1

	=	0.005	tons/yr
Allowable PM emis. from rule	=	4.10*P**0.67	lbs/hr
326 IAC 6-3-2 for citric acid	=	4.10*0.11**0.67	lbs/hr
bag unloading	=	0.93	lbs/hr
	=	(0.93 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	4.09	tons/yr
Max. controlled PM emiss. from bag unloading	=	0.005	tons/yr

Sulfuric Acid Mist Emissions

Storage Tanks - TK50902 & 31205

H2SO4 Emission Factor	0.008	lbs/ton	Based on emiss. factor of 0.1 lb for 100% H2SO4*5%
Process rate	106	tons/hr	
Unloading Rate	13,800	gal/hr	Based on unloading 4,600 gals in 20 minutes.
Annual Use Rate	70,080	gal/yr	
Density H2SO4	15.36	lbs/gal	Based on pumping rate of 8 gals/min
Demister efficiency (normal oprtn)	0.0	%	

(Based on emission factor of 0.1 lbs SOx/ton H2SO4,
in AIRS Book EPA 450/4-90-003, 3-01-023-21 SCC, March 1990)
(Based on unloading 4,600 gallons of H2SO4 in 20 minutes)
(Based on a pumping rate of 8 gals/mt)

Sulfuric acid specific gravity (1.841) * Density of water (8.345 lbs/gal)
Demister is for mist control only during initial fill and if H2SO4
enters tank below fill pipe. The demister is not used for normal operation.
The demister efficiency is approximately 80% for > 10u particles.

Potential H2SO4 emissions from storage tank vents	=	Emission factor * process rate	
a. Max Hourly	=	(0.008 lbs/ton)*(13,800 gal/hr)*(15.36 lbs/gal) /(2000 lb/ton)	
	=	0.848	lbs/hr
b. Max Yearly	=	(0.008 lbs/ton)*(70,080 gal/yr)*(15.36 lbs/gal) /(2,000 lbs/ton)	
	=	0.002	tons/yr
Maximum controlled H2SO4 emiss. from storage tank vents	=	Potential emissions	
a. Max Hourly	=	0.848	lbs/hr

b. Max Yearly	=	0.002	tons/yr

Acidulation Tank - TK50908

H2SO4 Emission Factor	0.160	lbs/ton	(Emiss. factor of 0.1 lbs SOx/ton
Acidulation Process rate	50,000	lb/day	H2SO4, in AIRS SCC
Acidulation Process rate	1.04	tons/hr	3-01-023-21 SCC, March 1990)
Scrubber (SC50901) efficiency	95	%	

Potential H2SO4 emis. from scrubber	=	Emission factor * process rate	
a. Max hourly	=	(0.16 lb/ton)*(1.04 ton/hr)	
	=	0.167	lbs/hr
b. Max Yearly	=	(0.167 lbs/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	0.730	tons/yr
Maximum controlled H2SO4 emissions from scrubber	=	Potential emissions(100-efficiency)/100	
a. Max hourly	=	(0.167 lbs/hr)*(100-95)/100	
	=	0.008	lbs/hr
b. Max Yearly	=	(0.73 tons/yr)*(100-95)/100	
	=	0.037	tons/yr
Allowable H2SO4 emissions	=	4.10* P**0.67	lbs/hr
from rule 328 IAC 6-3-2	=	4.10*1.04**0.67	lbs/hr
	=	4.21	lbs/hr
	=	(4.21 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	18.5	tons/yr
Maximum H2SO4 emissions from the storage vent and scrubber	=	0.039	tons/yr
Potential H2SO4 emissions from scrubber	=	0.730	tons/yr
State allow. H2SO4 emiss. for the purpose of permitting	=	0.730	tons/yr

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Main plant boilers

Emission factors for natural gas combustion are from AP42, Tables 1.4-1,-2,-3, revision 10/96.
NOx emission factor
0.0365 lb/MMBTU
36.5 lb/MMcuft

Unit	PM/PM10* (lb/unit)	SO2 (lb/unit)	NOx* (lb/unit)	VOC* (lb/unit)	CO* (lb/unit)
million cu. ft. burned	3.000	0.600	36.500	3.300	74.0

Heat input/boiler	200	Million BTU/hr	* Mfr's warranty
Number of boilers	2		
Potential natural gas usage	=	2*(200 mm BTU/hr)*(8,760 hr/yr)/(1,000 BTU /mm cuft/yr)	
	=	3,504 mmcu ft/yr	

Fuel Use (MMcf/yr)	PM/PM10 (ton/yr)	SO2 (ton/yr)	NOx (ton/yr)	VOC (ton/yr)	CO (ton/yr)
3,504	5.3	1.05	63.9	5.8	130

Emission factors for distillate oil combustion are from AP42, Tables 1.3-2 & 1.3-4, revision 1/95.

SO2 emission factor	142	S(%) of fuel - lb/1000 gallons oil
Sulfur in fuel	0.30	%

Unit =1,000 gallons oil	PM/PM10	SO2	NOx*	VOC*	CO
(lb/unit)	2	43	12.2	0.5	5

Maximum fuel oil usage = 2*(200 mm BTU/hr)*(8760 hr/yr)/(140,000 BTU/gal)
= 25,029 *1,000 gals/yr

Fuel Use (1,000 gals/yr)	PM/PM10 (ton/yr)	SO2 (ton/yr)	NOx (ton/yr)	VOC (ton/yr)	CO (ton/yr)
25,029	25.0	533	153	6.26	62.6
Limit of 39.9 tons/yr of SO2 emiss.	1.81	38.60	11.05	0.45	4.53
Revised fuel oil use:	1,812,141	gal/year, or	634	hr/year at max. rated load	

Maximum PM emiss. rate	=	(Emission factor)/(Heat content of nat. gas)
from the boilers when	=	(5.0 lb/mmcuft)/(1,000 Btu/cuft)
combusting natural gas	=	0.005 lb/cuft
Max. PM emissions rate	=	(Emis. factor for distillate oil)
from the boilers when		/(Heat content of distillate oil)
combusting distillate fuel oil	=	(2.0 lb/1,000 gals)/(140,000 Btu/gal)
	=	0.014 lb/mmBtu

Total source maximum operating capacity (Q)	=	440.0	MMBtu/hr heat input
Actual sulfur dioxide emiss.	=	(142 S lb/1,000 gals)*(1 gal/140,000Btu)	
due to fuel oil #2 as given	=	(142*0.3 lb/1,000 gals)*(1 gal/140,000Btu)	
by the applicant	=	0.30 lb/mmBtu	
	<	0.50 lb/mmBtu	
Allowable SO2 emissions from rule 326 IAC 7-1.1-2(a)(3), 326 IAC 12, and 40 CFR 60.42b(j)	=	0.5 lb/mmBtu	
Allowable S% weight emissions from rule 326 IAC 7-1.1-2(a)(3), 326 IAC 12, and 40 CFR 60.42b(j)	=	0.5	

The sulfur content is 0.3% wt. in fuel oil no. 2 for the proposed boilers. Therefore, the boilers are in compliance with the rule 326 IAC7-1.1-2(a)(3) and 40 CFR 60.42b(j).

Allowable NOx emiss. from rule 326 IAC12, and 40 CFR 60.44b(a)(1)	=	0.2 lb/mmBtu

The NOx emissions from the proposed boilers are 0.0365, and 0.087 pounds/MMBTu, when combusting natural gas, and distillate oil respectively. Therefore the boilers are in compliance with the rule 326 IAC 12 and 40 CFR 60.44b(a)(1).

Refinery boilers

Emission factors for natural gas combustion are from AP42, Tables 1.4-1,-2,-3, revision10/96.

TOC emission factor	5.8	lb/106 cf n-gas
VOC emission factor	48	% of TOC factor
	2.8	lb/106 cf n-gas

Unit	PM/PM10 (lb/unit)	SO2 (lb/unit)	NOx* (lb/unit)	VOC (lb/unit)	CO (lb/unit)
million cu. ft. burned	13.70	0.60	36.50	2.78	35.00

* Manufacturer guaranty

Heat input/boiler	10	Million BTU/hr
Number of boilers	2	
Potential natural gas usage	=	2*(10 mm BTU/hr)*(8,760 hr/yr)/(1,000 BTU/cu ft)
	=	175.2 Million cu ft/yr

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Fuel Use Mcf/yr	PM (ton/yr)	SO2 (ton/yr)	NOx (ton/yr)	VOC (ton/yr)	CO (ton/yr)
175.2	1.20	0.053	3.20	0.24	3.07

Max. PM emissions rate	=	(Emission factor)/(Heat content of nat. gas)
from the boilers when	=	(13.7 lb/mmcuft)/(1,000 Btu/cuft)
combusting natural gas	=	0.014 lb/mmBtu

Reformer (hydrogen plant) boiler

Emission factors for natural gas combustion are from AP42, Tables 1.4-1,-2,-3, revn. 10/96.

TOC emission factor	5.8	lb/106 cf n-gas
VOC emission factor	48	% of TOC factor
	2.8	lb/106 cf n-gas

Unit	PM/PM10 (lb/unit)	SO2 (lb/unit)	NOx* (lb/unit)	VOC (lb/unit)	CO (lb/unit)
million cu. ft. burned	13.70	0.60	36.50	2.78	35.00

* Manufacturer guaranty

Heat input/boiler	20	Million BTU/hr
Number of boiler	1	
Potential natural gas usage	=	(20 mm BTU/hr)*(8,760 hr/yr)/(1,000 BTU/cu ft)
	=	175.2 mm cu ft/yr

Fuel Use Mcf/yr	PM/PM10 ton/yr	SO2 ton/yr	NOx ton/yr	VOC ton/yr	CO ton/yr
175.2	1.20	0.053	3.2	0.24	3.1

Maxi. PM emissions rate	=	(Emission factor for nat. gas)
from the boiler when		/(Heat content of nat. gas)
combusting natural gas	=	(13.7 lb/mmcuft)/(1,000 Btu/cuft)
	=	0.014 lb/mmBtu
Total source maximum operating capacity (Q)	=	440.0 mmBtu/hr heat input
Allowable particulate emiss.	=	(1.09)/Q^0.26 lbs/mmBtu
from any boiler	=	(1.09)/440^0.26 lbs/mmBtu
	=	0.224 lbs/mmBtu
	>	0.014 lbs/mmBtu

Therefore, the boilers are in compliance with the rule 326 IAC 6-2-4.

Diesel Generator

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Diesel Generator is for standby purposes only: maximum 52 hours per year.
Emission factors for diesel oil combustion are from the vendor warrantee.

SO_2 emission factor	1.01	times S (%) of fuel - lb/million BTU input
Sulfur in fuel	0.300	% 25.60 gals/hr @ 139,000 Btu/hr

Unit	PM/PM10 (lb/unit)	SO2 (lb/unit)	NOx (lb/unit)	VOC (lb/unit)	CO (lb/unit)
	0.0520	0.2900	2.74	0.0345	0.8170

Maximum fuel oil usage = 25.6 gal/hr*139,000 Btu/gal)*(52 hrs/yr)
= 185 Million BTU/yr

Fuel Use (mmBtu/hr)	PM/PM10 (ton/yr)	SO2 (ton/yr)	NOx (ton/yr)	VOC (ton/yr)	CO (ton/yr)
185	0.0048	0.027	0.253	0.0032	0.076

Elevator grain dryer

Emission factors are from AP42, Tables 1.4-1, 2, 3, revision 10/96.

Heat input 45 Million BTU/hr

Unit	PM/PM10	SO2	NOx*	VOC	CO
million cu. ft.	(lb/unit)	(lb/unit)	(lb/unit)	(lb/unit)	(lb/unit)
million cu. ft. burned	14.00	0.60	33.00	2.80	120.00

* Mfr guarantee of 25 ppm @ 3% excess O2.

Potential natural gas usage = (45 mm BTU/hr)*(8,760 hr/yr)/(1,000 BTU/cu ft)
= 394.2 Million cu ft/year

Fuel Use (MMcf/yr)	PM/PM10 (ton/yr)	SO2 (ton/yr)	NOx (ton/yr)	VOC (ton/yr)	CO (ton/yr)
394.2	2.76	0.12	7	0.6	23.7

Hexane (VOC) emissions

Density of hexane = 5.6 lb /gal

Process limit of soybean = 2,489,089 tons/yr
= 284.14 tons/hr

Soybean Oil Extraction Volatile Organic Compounds (VOC) Emissions

Hexane is lost from the extraction and desolventizing operations in soybean extraction and in refining plants. These include:

Point sources

a) Vent system gas during normal operation
b) Meal dryers
c) Meal cooler
d) Hexane storage tank
e) Refinery hot well

Fugitive emissions

f) Plant start-up / shutdowns
g) Plant upsets
h) General - equipment failures/leaks
i) Solvent samples

Bound in product/by-product

j) Desolventized flakes (meal)
k) Process wastewater

Main gas vent (Mineral Oil Absorber)

A. Normal operating conditions

Mineral Oil Absorber disch, maximum	341	ft^3/min air at 90^0F	
Mineral Oil Absorber disch, normal	29	% LEL	= 1.2
Crush/Process rate	284.14	ton/hr	

Inlet to absorber	=	(341 cfm)*(1 lb air/15 cf)*(0.54 lb hexane /0.43 lb air)*(60 min/hr)	
	=	1,713	lb/hr
Outlet from absorber	=	(341cfm)*(1 lb air/5 cf)*(60 min/hr)*1.2%*29%	
	=	14.2	lb/hr
	=	(14.2 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	62.4	tons/yr
Hexane emissions during	=	Emission rate/processing rate	
normal operation	=	(14.2 lb/hr)/(284.14 ton/hr)	
	=	0.050	lb/ton crush
Efficiency of absorber	=	(Inlet - Outlet)/Inlet * 100%	
	=	(1,713-14.2)/1,713 * 100%	
	=	99.2	%

B. Upset Operating Conditions

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Upset frequency (average)	=	5	times/yr
Upset duration (average)	=	3	hrs/occurrence
Air flow rate (maximum)	=	3,000	cfm
Hexane outlet conc. (max.)	=	1,000	% LEL
LEL	=	1.20	%
Outlet from absorber (max)	=	(3,000 cfm)*(1000%)*(1.2%)*(1 lb/5 cf)*(60 min/hr)	
	=	4,320	lb/hr
	=	(hexane lb/hr)*(upset hr/yr)/(2,000 lb/ton)	
	=	(4,320 lb/hr)*(15 hr/yr)/(2,000 lb/ton)	
	=	32.4	ton/yr
Hexane emissions - upset	=	Emission rate/processing rate	
condition	=	(hexane rate)*(2,000 lb/ton)/(process rate)	
	=	(32.4 ton/yr)*(2,000 lb/ton)/(2,489,089 ton/yr)	
	=	0.0260	lb/ton crush
Total absorber hexane	=	(Normal + Upset) emissions	
emissions	=	(62.4 + 32.4) tons/yr	
	=	94.8	tons/yr
Hexane emiss. during	=	Emission rate/processing rate	
normal and upset conditions	=	(hexane ton/yr)*(2,000 lb/ton)/(Process ton/yr)	
	=	(94.8 ton/yr)*(2,000 lb/ton)/(2,489,089 ton/yr)	
	=	0.076	lb/ton crush

Note: one MO absorber column will be used.

Process Waste Water

Water flow	=	67	gal/min
	=	33,527	lbs/hr
Hexane concentration	=	62	ppmw
Average hexane emiss.	=	(Water)*(ppmw)	
	=	(33,527 lb/hr)*(62/1,000,000)	
	=	2.08	lb/hr
Average hexane emiss.	=	(2.08 lb/hr)/(284.14 tons/hr)	
	=	0.0073	lb/ton
Total hexane emission rate	=	(0.0073 lb/ton)*(2,489,089 tons/yr)	
	=	9.10	tons/yr

Soybean oil refinery hot well

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Normal operating conditions occur at all times

Refining capacity	20	% of crush	
	113,657	lb/hr	
Hexane in crude oil	100	ppmw	Manufacturer's estimate, primary
Hexane in finished oil	0.000	ppmw	oil dryer in extraction vented to
Capture efficiency	90.000	%	boiler for incineration.
Destruction efficiency	98.000	%	

Hexane from the oil refinery is vented from the refinery hot well which receives condensate from the refinery oil vacuum drier.
The hot well will be covered and will be vented to a boiler for VOC (hexane) destruction.

Maximum fugitive hexane lost in hot well = (Process rate)*(hexane delta conc.)*(1- capt. eff./100)
= (113,657 lb/hr)*((100 -0.00)ppmw)*(1 - 0.9)

a) Hourly = 1.14 lb/hr

b) yearly = (1.14 lb/hr)*(8,760 hrs/yr)/(2,000 lbs/ton)
= 4.98 tons/yr

Controlled hexane emiss. from hot well = (Process rate)*(hexane delta conc.)*(capt. eff./100) *(1-dest. eff./100)

a) Hourly = (113,657 lb/hr)*((100 -0.00)ppmw)*(90/100)*(1-98/100)
= 0.205 lb/hr

b) yearly = (0.205 lb/hr)*(8,760 hrs/yr)/(2,000 lbs/ton)
= 0.896 tons/yr

Dryer flake desolventizing

A. Normal operating conditions

Flakes in beans	75	% weight	
Hexane in meal to dryer	300	ppmw	Manufacturer's estimate: improved DT
Hexane in meal from dryer	150	ppmw	Manufacturer's estimate: 5 drying trays

Maximum hexane emissions = (Process rate)*(2,000 lb/ton)*(meal %) *(hexane delta ppmw)
= (284.14 ton/hr)*(2,000 lb/ton)*(75 %)*(150 ppmw)
= 63.9 lb/hr
= (2,489,089 ton/yr)*(2,000 lb/ton)*(75 %) *(150 ppmw)
= 280 ton/yr

Hexane emissions during	=	Emission rate/processing rate	
normal operation	=	(63.9 lbs/hr)/(284.14 tons/hr)	
	=	0.225	lb/ton crush

B. Upset conditions

Hexane in meal to dryer	2,000	ppmw	
Hexane in meal from dryer	1,000	ppmw	

Post dryer hexane concentration is 2,000 ppmw x 150 ppmw.
/300 ppmw = 1,000 ppmw hexane.

Maximum hexane emissions	=	(Proc. rate)*(2,000 lb/ton)*(meal %)*		
	=	(hexane delta ppmw)*(284.14 ton/hr)*(2,000 lb/ton)		
	=	426	lb/hr	*(75 %)*(1,000 ppmw)
	=	(hexane lb/hr)*(upset hour/year)/(2,000 lb/ton)		
	=	(426 lb/hr)*(5*3 hrs/yr)/(2,000 lb/ton)		
	=	3.20	ton/yr	

Hexane emissions during	=	Emission rate/processing rate	
upset conditions	=	((3.20 tons* 2,000 lbs/ton)/yr)/(2,489,089 ton/yr)	
	=	0.0026	lb/ton crush

Total hexane emissions	=	Emiss. during normal operation + upset cond.	
	=	(280 + 3.2)	tons/yr
	=	283	ton/year

Hexane emissions from	=	Emission rate/processing rate	
meal dryers	=	(283*2,000 lbs/yr hexane)/(2,489,089 tons/yr crush)	
	=	0.228	lb/ton crush

Cooler flake desolventizing

A. Normal operating conditions

Flakes in beans	75	% weight
Hexane in meal to cooler	150	ppmw
Hexane in meal from cooler	95	ppmw

Maximum hexane emissions	=	(284.14 ton/hr)*(2,000 lb/ton)*(75 %)*(55 ppmw)	
	=	23.4	lbs/hr
	=	(23.4 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)	
	=	103	tons/yr

Hexane emissions during	=	Emission rate/processing rate	
normal operation	=	(23.4 lbs/hr hexane)/(284.14 tons/yr crush)	
	=	0.083	lb/ton crush

B. Upset conditions

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Hexane in meal to cooler	1000	ppmw
Hexane in meal from cooler	633	ppmw

Post dryer hexane concentration is 1,000 ppmw x 95 ppmw/150 ppmw = 633 ppmw hexane.

Maximum hexane emissions = (Process rate)*(2,000 lb/ton)*(meal %)*(hexane delta ppmw)
= (284.14 ton/hr)*(2,000 lb/ton)*(75 %)*(367 ppmw)
= 156 lb/hr

Maximum hexane emissions = (Hexane lb/hr)*(upset hour/yr)/(2000 lb/ton)
= (156 lb/hr)*(5*3 hour/yr)/(2,000 lb/ton)
= 1.17 ton/yr

Hexane emissions during upset conditions = Emission rate/processing rate
= (1.17 tons/yr)*(2,000 lbs/ton) hexane) /(2,489,089 tons/yr crush)
= 0.001 lb/ton crush

Total hexane emissions = Emis. during normal oprn + upset conditions
= (103 + 1.17) tons/yr
= 103.8 tons/yr

Hexane emissions from cooler = Emission rate/processing rate
= (103.8 *2,000 lbs/yr hex)/(2,489,089 tons/yr crush)
= 0.083 lb/ton crush

Hexane remaining in meal (flakes)

A. Normal operating conditions

Flakes in beans	75	% weight
Hexane in meal	95	ppmw

Maximum hexane in meal = (Process rate)*(2,000 lb/ton)*(meal %) *(residual hexane ppmw)
= (284.14 ton/hr)*(2,000 lb/ton)*(75%)*(200 ppmw)
= 40.5 lb/hr
= (40.5 lb/hr)*(8,760 hr/yr)/(2,000 lbs/ton)
= 177 ton/yr

Hexane in meal during normal operation = Content/processing rate
= (40.5 lbs/hr)/(284.14 tons/hr)
= 0.142 lb/ton crush

B. Upset conditions

Hexane in meal to cooler	633	ppmw	
Maximum hexane in meal	=	(284.14 ton/hr)*(2,000 lb/ton)* *(75%)*(633 ppmw)	
	=	270	lb/hr
	=	(hexane rate)*(upset hr/yr)/(2,000 lb/ton)	
	=	(270 lb/hr)*(5*3 hr/yr)/(2,000 lb/ton)	
	=	2.02	tons/yr
Hexane in meal	=	Content/processing rate	
during upset conditions	=	(2.02 ton/yr)*(2,000 lbs/ton)/(2,489,089 tons/yr)	
	=	0.0016	lb/ton crush
Total hexane in meal	=	Hexane in meal (normal oprn + upset cond.)	
	=	(177 + 2.02) tons/yr	
	=	179	ton/year
Hexane in meal	=	Content/processing rate	
	=	(179 *2,000 lbs/yr hexane)/(2,489,089 tons/yr)	
	=	0.144	lb/ton crush

Start-up/Shutdowns

Start-up/Shutdown Conditions (Fugitive losses)

Startup solvent loss	38,192	lbs or	6,820	gals
Shutdown solvent loss	38,192	lbs or	6,820	gals
Hexane density	5.60	lb/gal		
Loss for 1 startup/shutdown	76,384	lbs or	13,640	gals
Duration of startup	2	hrs		
Duration of shutdown	2	hrs		
Duration of 1 startup/shutdown	4	hrs		
Freq. of startup/shutdown	4	times/year		
Total duration	16	hrs/year		

Maximum hexane emissions	=	(Total hexane loss for 1 startup/shutdown) *(Duration of 1 startup/shutdown)	
	=	(76,384 lb)/(4 hrs)	
	=	19,096	lbs/hr
Total Hexane emissions	=	(Total hexane loss/hr)*(duration hr/yr) /(2,000 lb/ton)	
	=	(19,096 lbs/hr)*(16 hr/yr)/(2,000 lb/ton)	
	=	153	ton/year

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Hexane emissions	=	Emission rate/processing rate	
	=	(153 *2,000/yr hexane)/(2,489,089 tons/yr crush)	
	=	0.123	lb/ton crush

Plant Upsets

Upset conditions (Fugitive losses)

When the process system is under pressure assume hexane loss to the atmosphere is equal to the volume of air normally pulled into the system.

Duration	3	hrs
Frequency	5	times/yr
Total duration	15	hrs/yr

Flow of air in the flakes	=	(Process rate)*(meal %)*(2,000 lb/ton) *(1 hr/60 min)*(1 cf/60 lb)	
	=	(284.14 tons/hr)*(75 meal %)*(2,000 lb/ton) *(1 hr/60 min)*(1 cf/60 lb)	
	=	118	cfm

The volume of hexane lost will be equal to the air drawn into the system during normal operations.

Hexane loss	=	341 ft^3/min - 118 ft^3/min	
	=	223	cfm
Maximum hexane emissions	=	(cfm)*(60 min/hr)*(3 lb/15 cf)*(hr/occ) *(occ/yr)*(1 ton/2,000 lb)	
	=	(223 cfm)*(60 min/hr)*(3 lb/15 cf)*(3 hr/occ) *(5 occ/yr)*(1 ton/2,000 lb)	
	=	20.0	ton/yr
Hexane emissions	=	(hexane ton/yr)*(2,000 lb/ton)/(ton crush/yr)	
due to upsets	=	(20 *2,000 lb/yr hexane)/(2,489,089 ton /yr crush)	
	=	0.016	lb/ton crush

General Leaks and Equipment Failures (fugitive emissions)

Various potential sources of leaks exist throughout the plant.

Annual leak average 0.210 lb/ton crush (reduced from 0.28 due to LDAR)
It occurs throughout the year.
No identifiable conditions.

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Average hexane emissions	=	(0.21 lb/ton)*(process rate)
	=	(0.21 lb/ton)*(284.14 ton/hr)
	=	59.7 lbs/hr
	=	(59.7 lb/hr)*(8,760 hr/yr)/(2,000 lb/ton)
	=	261 ton/yr

Sampling (fugitive losses)

A small amount of hexane is lost with sampling and unloading purchased hexane.

Sampling frequency	24	samples/day (during normal operation)
Sample volume	0.100	gallon
Sample content	90	% hexane

Hexane emissions	=	(24 samples/day)*(365 day/yr)*(0.1 gal/samp) *(5.6 lb/gal)*(90%/100)*(1 ton/2,000 lb)
	=	2.21 ton/yr
Annual total hexane emissions	=	(2.21 ton/year)*(2,000 lb/ton)/(ton crush/yr)
	=	0.0018 lb/ton crush

Hexane vapors remaining in delivery truck after unloading

Hexane loss	=	(Amount of truck volume emptied) *(lb hexane/lb vapor)*(density of vapor)
	=	(Solvent loss ton/yr)*(2,000 lb/ton)*(gal/5.6 lb) *(1 cf/7.48 gal)*(1 lb/15 cf air)*(0.54 lb hexane /0.43 lb air vapor)*(1 ton/2,000 lb)
	=	(1,115.1 ton/yr)*(2,000 lb/ton)*(gal/5.6 lb)* *(1 cf/7.48 gal)*(1 lb/15 cf air)*(0.54 lb hexane /0.43 lb air vapor)*(1 ton/2,000 lb)
	=	2.23 ton/yr
Hexane loss rate	=	(hexane ton/yr)*(2,000 lb/ton)/(ton crush/yr)
	=	(2.23 *2,000 lb/hexane)/(2,489,089 ton /yr crush)
	=	0.0018 lb/ton crush

Hexane vented from storage tank

Hexane storage tank is always vented to the mineral absorption system.
Therefore, no tank venting of breathing or working losses to the atmosphere occur.

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Hexane loss	=	0.000	ton/yr
	=	0.000	lb/ton crush

Hexane Loss Breakdown (ton/year)

Type of Disappearance Air Emissions-Point Sources	Disapp. Normal (ton/yr)	Disapp. Upset (ton/yr)	Disapp. Normal + Upset (ton/yr)
Vent system (oil absorber)	62.4	32.4	94.8
Desolventized meal dryers	280	3.20	283
Desolventized meal cooler	103	1.17	104
Refinery hot well	0.90	0.00	0.90
Subtotal	446	36.8	483
Air Emissions-Fugitive			
Start-ups / shutdowns		153	153
Plant upsets		20.03	20.03
Sampling/hexane unloading	4.44		4.44
Hotwell	4.98		4.98
General	261		261
Subtotal	271	173	444
Products & byproducts			
Meal	177	2.02	179
Waste water	9.10		9.10
Subtotal	186	2.02	188
Total	903	212	1,115

Hexane Loss Breakdown (lb/ton)

Type of Disappearance Air Emissions-Point Sources	Disapp. Normal (lb/ton)	Disapp. Upset (lb/ton)	Disapp. Normal + Upset (lb/ton)
Vent system (oil absorber)	0.050	0.0260	0.076
Desolventized meal dryers	0.225	0.003	0.228
Desolventized meal cooler	0.083	0.001	0.083
Refinery hot well	0.001	0.00	0.001
Subtotal	0.358	0.030	0.388

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Air Emissions-Fugitive

Start-ups / shutdowns	0.000	0.123	0.123
Plant upsets	0.000	0.016	0.016
Sampling/hexane unloading	0.004	0.000	0.004
General	0.000	0.210	0.210
Refinery hot well	0.004	0.000	0.004
Subtotal	0.008	0.349	0.356
Products & byproducts			
Meal	0.142	0.002	0.144
Waste water	0.007	0	0.007
Subtotal	0.150	0.002	0.151
Total	0.516	0.380	0.896

Hexane (VOC) Emission Summary

Max. contr. hexane emiss. from point sources	=	482.7	tons/year
Total fugitive hexane emiss.	=	443.6	tons/year
Total source hexane emiss.	=	926.3	tons/year
Hexane lost with meal	=	179.4	tons/year
Hexane lost with waste water	=	9.10	tons/year
Total Hexane inventory loss	=	1,115	tons/year
VOC emissions from fire pump tank	=	1.49	lbs/yr
VOC emissions from boiler fuel oil tank	=	31.2	lbs/yr
VOC emissions from crude soy oil storage tank	=	8,131	lbs/yr
Total VOC emiss. from	=	8,163.3	lbs/yr
tanks	=	4.08	tons/year

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Vehicle Traffic
Fugitive PM Emissions

Distance Traveled on Paved and Unpaved Roads per One-Round Trip

	Paved (mile)	Unpaved (miles)	Total (mile)
Full (40 tons)	1	0	1
Empty (10 tons)	0.30	0.000	0.30
Total (miles)	1	0	1

Information for the emission calculations are based on AP-42 Section 13.2.1 Paved Roads.

E = k [sL/2] 0.65 [W/3]1.5 — Equation (1) from 13.2.1, AP-42

wh E = emissions (lbs/vehicle mile traveled (VMT))
k = particle size multiplier (lbs per vehicle mile traveled)
sL = road surface silt loading (grams per square meter)
W = average weight (tons) of the vehicles traveling the road

k	=	0.082	particle size multiplier (most conservative case, pg 13.2.1-3, AP-42)
sL	=	0.080	g/m2 (silt loading for Kings Highway, St. Louis, MO, a Midwest collector road, Table 13.2.1-3, AP-42)
W	=	30.2	(tons) mean weight (based on distance traveled full and empty)

Therefore,

E	=	0.32	lbs/VMT (lbs per vehicle mile traveled)

Calculation of vehicle miles traveled (VMT)

Distance of one one-way trip	1	miles
Max. number of one-way trips	7	one-way trips/hr (based on all meal/hulls shipped by truck)
Hours per year	8,760	hours/year

VMT = Distance of one-way trip x Number of one-way trips per hour x hours per year

VMT = 60,188 miles per year

Potential fugitive	=	E x VMT	
PM emissions/yr	=	19,470	lbs per year
	=	9.7	tons per year

Fugitive PM10 Emissions

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Distance Traveled on Paved and Unpaved Roads per One-Round Trip

	Paved (mile)	Unpaved (mile)	Total (mile)
Full (40 tons)	1	0.000	1
Empty (10 tons)	0.30	0.000	0.30
Total (miles)	1	0.000	1

Information for the emission calculations are based on AP-42 Section 13.2.1 Paved Roads.

E = k [sL/2] 0.65 [W/3]1.5 — Equation (1) from 13.2.1, AP-42

where:
E = emissions (lbs/vehicle mile traveled (VMT))
k = particle size multiplier (lbs per vehicle mile traveled)
sL = road surface silt loading (grams per square meter)
W = average weight (tons) of the vehicles traveling the road

k	=	0.016	particle size multiplier (PM-10, pg 13.2.1-3, AP-42)
sL	=	0.080	g/m2 (silt loading for Kings Highway, St. Louis, MO, a Midwest collector road, Table 13.2.1-3, AP-42)
W	=	30	(tons) mean weight (based on distance traveled full and empty)

Therefore,

E	=	0.063	lbs/VMT (lbs per vehicle mile traveled)

Calculation of vehicle miles traveled (VMT)

Distance of one one-way trip	1	miles
Max. number of one-way trips	7.47	one-way trips/hr
Hours per year	8,760	hrs/yr

VMT = Distance of one-way trip x Number of one-way trips per hour x hours per year

VMT = 60,188 miles/ yr

Potential fugitive PM10 emissions per year = E x VMT

= 3,799 lbs/yr
= 1.9 tons/yr

Allowable PM emissions are taken as equal to after control emissions, otherwise the allowable emissions from 326 IAC 6-3-2 will exceed the PTE emissions. All emissions have units of ton/year.

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EMISSIONS SUMMARY

Facilities	Potential Emissions PM	Potential Emissions PM10	Max. Emiss. PM	Cont. Emiss. PM10	Allowable Emis. PM
Receiving system	1,174	327	8.48	3.75	8.48
Bean screener	152	152	0.195	0.195	0.195
Grain dryer	51.0	12.75	51.0	12.75	51.0
Grain storage loading	40.5	22.6	0.845	0.845	0.845
Grain silo unload	124	68.9	0.53	0.53	0.53
Soybean hot dehulling	4,718	923	92.2	28.5	92.2
Soybean flake vacuum	0.056	0.056	0.056	0.056	0.056
Soybean screenings convey	0.056	0.056	0.056	0.056	0.056
Soybean pod grinding cnvey	0.056	0.056	0.056	0.056	0.056
Soybean flaking	422	259	1.13	1.13	1.13
Extractor seal conveying	0.205	0.126	0.205	0.126	0.205
Meal Dryers	1,400	840	15.6	15.6	15.6
Meal Cooler	1,680	1,027	5.08	5.08	5.08
Meal convey/grind/screen	3,231	1,971	1.14	1.14	1.14
Meal storage & handling	359	97.0	0.451	0.451	0.451
Kaolin tank	1.75	0.53	0.068	0.068	0.068
Meal/grain/hull loadout	535	188	7.12	4.88	7.12
Soybean meal car vacuum	0.07	0.07	0.07	0.07	0.07
Hull bin loading	1.46	0.364	0.29	0.29	0.29
Hull grinding & handling	147	87.7	0.61	0.61	0.61
Hull pellet cooling	10.2	5.10	2.19	1.09	2.19
Lecithin Grinding & Conveying	4.38	4.38	0.134	0.134	0.134
DE silo TK41702	0.007	0.007	0.070	0.070	0.070
DE bulk bag ME50304	0.005	0.005	0.005	0.005	0.005
Silica bulk bag ME50101	0.002	0.002	0.002	0.002	0.002
DE bulk bag ME50201	0.0004	0.0004	0.0004	0.0004	0.0004
Carbon bulk bag ME50202	0.0004	0.0004	0.0004	0.0004	0.0004
DE bulk bag ME50301	0.0015	0.0015	0.0015	0.0015	0.0015
Nickel cat. bag ME50303A & B	0.003	0.003	0.003	0.003	0.003
Bleaching clay silo TK51104	0.008	0.008	0.0003	0.0003	0.0003
Citric acid bag ME51101	0.008	0.008	0.008	0.008	0.008
DE bulk bag ME50305	0.005	0.005	0.005	0.005	0.005
DE bulk bag ME52401	0.005	0.005	0.005	0.005	0.005
DE bulk bag ME52301	0.005	0.005	0.005	0.005	0.005
Main plant boilers - Gas	4.88	4.88	4.88	4.88	4.88
" backup fuel oil	1.8	1.8	1.8	1.8	1.8
Refinery boilers	1.20	1.20	1.20	1.20	1.20
Reformer boiler	1.20	1.20	1.20	1.20	1.20
Diesel Generator	0.00	0.00	0.00	0.00	0.00
Elevator grain dryer	2.76	2.76	2.76	2.76	2.76

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Vehicular traffic	1.90	1.90	1.90	1.90	1.90
TOTAL	14,065	6,000	201	91	201

		Controlled emissions			
Facilities	VOC	SO2	NOx	CO	H2SO4
Main plant boilers - gas	5.4	0.98	59.3	120	
Main backup fuel oil	0.45	38.6	11	4.5	
Refinery boilers	0.24	0.053	3.2	3.1	
Reformer boilers	0.24	0.053	3.2	3.1	
Diesel generator	0.00	0.03	0.253	0.1	
Grain dryer	0.6	0.12	6.5	23.7	
Extraction system*	483				
H2SO4 storage tank					0.002
Batch acidulation tank					0.037
VOC emiss. from tanks	4.1				
Total	494	39.8	83.5	155	0.04
Fugitive emissions	444				
Grand Total	937	39.8	83.5	155	0.04

* Point sources

Allowable PM emissions

Allowable PM emissions are determined from the applicability of rule 40 CFR 52.21.

Allowable PM emissions = Controlled PM emissions
= 201 tons/yr

Allowable SO_2 emissions

Allowable SO2 emissions for permitting purpose are determined from the applicability of rule 40 CFR 60, Subpart Db, and 326 IAC 7 for the two main boilers, and the unconontrolled emissions from the refinery, and reformer boilers; diesel generator; and grain dryer.

Allowable SO_2 emissions = [{(0.5 lbs/MMBtu)*(400 MMBtu/hr)*(8,760 hrs/yr) /(2,000 lbs/ton)} + {(0.053 + 0.105 + 0.03 + 0.12)} tons/yr
= 876 tons/yr

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Allowable NOx emissions

Allowable NOx emissions are determined from the applicability of rule 40 CFR 60, Subpart Db for the two main boilers, and the unconontrolled emissions from the refinery, and reformer boilers; diesel generator; and grain dryer.

Allowable NOx emissions = [{(0.2 lbs/MMBtu)*(400 MMBtu/hr)*(8,760 hrs/yr) /(2,000 lbs/ton)} + {(3.20 + 3.2 + 0.253 + 6.5)} tons/yr
= 364 tons/yr

BACT DETERMNATION FOR VOC

The follwing company's BACT determination from RBLC were evalutaed to determine the BACT for this plant.

Company	Permit Date	BACT Determined
Boon Valley Corp. Eagle Grove, Ia	11/01/83	Mineral Oil Absorber - on extractor — 0.07 lb of Hexane/ton of soybean Dryer- 0.25 lb of Hexane/ton of soybean Cooler- 0.20 lb of Hexane/ton of soybean
Owensboro Grain, Owensboro, Kentucky	02/24/81	Mineral Oil Absorber - on extractor Overal limit on Hexane emissions - 2.9 lb/ton of soybean
Cargill Inc. Savage, Mn	12/09/86	Mineral Oil Absorber - on extractor Overal limit on Hexane emissions - 2.9 lb/ton of soybean(24 hr) 2.0 lb/ ton(30 day) Fugitive emissions limit - 2.0 lb/ ton of soybean
Central Soya, Morristown, Indiana	7/95	Mineral Oil Absorber - on extractor — 0.12 lb of Hexane/ton of soybean Dryer- 0.16 lb of Hexane/ton of soybean

		Cooler-	0.16 lb of Hexane/ton of soybean
Consolidated Grain & Barge Company	4/97	Mineral Oil Absorber - on extractor	0.16 lb of Hexane/ton of soybean
		Dryer-	0.33 lb of Hexane/ton of soybean
		Cooler-	0.06 lb of Hexane/ton

Overal limit on Hexane emissions - 0.25 gal/ton first year, then 0.24 gal/ton of soybean
The company shall continue to minimize hexane emissions losses by training the operators, and supervisors of the plant. At the end of each calendar year, the company shall send the progress made in minimizing the hexane emissions from the plant to IDEM.

Southern Soya Corp. Estill, South Carolina	10/02/95	Overal limit on Hexane emissions - 2 lbs/ton or 0.357 gals/ton	
Archer Daniel Midland Valdosta, Georgia	04/29/96	Overal limit on Hexane emissions - 2.93 lbs/ton or 0.523 gals/ton	
Archer Daniel Midland C North Kansas City Missouri	10/17/97	Overal limit on Hexane emissions - 0.25 gals/ton BACT includes a leak detection plan.	
ConAgra Soybean Processing Company	Proposed	Mineral Oil Absorber - on extractor	0.078 lb of Hexane/ton of soybean
		Dryer-	0.228 lb of Hexane/ton of soybean
		Cooler-	0.083 lb of Hexane/ton of soybean

Overal limit on Hexane emissions - 0.20 gal/ton first year, then 0.16 gal/ton of soybean
BACT includes a leak detection and repair plan.

The company shall continue to minimize hexane emissions losses by training the operators, and supervisors of the plant. At the end of each calendar year, the company shall send the progress made in minimizing the hexane emissions from the plant to IDEM.