July 17, 1995

M E M O R A N D U M

TO: Martin Bauer, Chief
Construction Permits Bureau
Permits and Enforcement

FROM: Bill Rogers, Air Quality Engineer
Construction Permits Bureau
Permits and Enforcement

SUBJECT: ***PERMIT TO CONSTRUCT TECHNICAL ANALYSIS***
P-950101 Envirosafe Services of Idaho, Inc., Elmore County
(Rail Transfer Facility)

PROJECT DESCRIPTION

On May 8, 1995, DEQ received a Permit to Construct (PTC) application from Envirosafe Services of Idaho, Inc. (ESII) for a proposed upgrade to their existing Rail Transfer Facility (RTF) located in Elmore County, Idaho. The facility is used as a transfer point to transfer solid hazardous and industrial waste (wastes) from rail cars to trucks for transfer to ESII's disposal site located near Grand View, Idaho (Site B). ESII uses a rail spur track, adjacent to the Union Pacific Railroad, to spot up to 15 rail cars awaiting transfer. Waste loads are transferred to trucks inside the RTF and hauled to Site B for subsequent management. No waste processing occurs inside the RTF. Two waste transfer operations will be located inside the RTF: (1) the existing unloading of wastes from rail car to trucks, and (2) a proposed neumatic rail car unloading system to unload fine particle wastes.

The existing system uses a backhoe to unload wastes out of gondola rail cars to trucks. The waste is placed into the unloading bed of the truck that will haul the waste off-site. ESII will maintain this process to transfer wastes with particle size or mass transfer characteristics that are not amenable for pneumatic transfer. The RTF building uses a general building ventilation baghouse to control particulate emissions from this transfer process.

The proposed upgrade to the existing facility includes a pneumatic conveyance system to transfer fine particle waste. This will be accomplished by fitting a chute onto each individual hopper of a hopper car, one at a time. The chute will provide an air-tight seal for the pneumatic transfer process. The pneumatic conveying system will transfer the fine particulate waste from a hopper car to a staging hopper. The wastes will be subsequently loaded into trucks for transport to Site B. A controlled discharge spout will be used to dispense wastes into the trucks. Conveyance air will be routed directly to a dedicated baghouse that will capture any dust generated from the material transfer. The exhaust from the loading spout will be routed to the general building ventilation baghouse for particulate removal.

In addition to the pneumatic transfer system, ESII plans to increase the fan capacity of the building's general ventilation system. The increased fan capacity will maintain a net negative pressure inside the building with all doors open. This system is designed to capture all dust within the building, allowing for air discharge only from the baghouse stacks.

SUMMARY OF EVENTS

On May 8, 1995, DEQ received a PTC application from ESII for the proposed upgrade to the RTF located in Elmore County. The application was determined complete on June 1, 1995.

A. Discussion

1. Area Classification

Elmore County, Idaho is designated as an attainment or unclassifiable area for all criteria pollutants.

2. Emission Estimate

The existing transfer process is designed to transfer approximately up to 213 tons per hour (T/hr) of wastes from gondola rail cars. The proposed pneumatic system is designed to transfer up to 50 T/hr of wastes from hopper cars. Each system will be used to transfer different wastes. The existing system will be used to transfer aggregate, soils, and other materials with large particle sizes (not passing a #200 mesh screen). The proposed system will transfer materials with small particle sizes which pass through a #200 mesh screen.

Three categories of potential emissions are anticipated from this facility: particulate matter (TSP), volatile (and toxic) organic compounds (VOC), and metals. Emission estimates were provided by the applicant. The following narrative summarizes how each of the pollutants mentioned was quantified.

2.1.1 **PARTICULATE EMISSIONS**

The TSP emissions from the existing system will be caused by the unloading of the material to be transferred. The quantity of TSP emitted in each transfer was estimated using the equation found on Page 11.2.3-3 of AP-42:

$$E = k*(0.0032)*[(U/5)^{1.3}/(M/2)^{1.4}]$$

This equation may be applied to batch or continuous transfer operations of aggregate materials. This emission factor is appropriate for those wastes transferred using the existing transfer operations. It was applied twice-once for the unloading of the gondola car and once for loading the haul truck.

The pneumatic transfer process is proposed for wastes with smaller particle sizes than the type of wastes being handled by the existing transfer process. The emission factor used by the applicant that most closely represents the emissions from the proposed transfer process is that for phosphate rock processing (AP-42 Section 8.18). The emission factor that was used is 1.5 lb TSP/ton material handled. This factor coincides with the grinding process of phosphate rock in that "ground rock is conveyed in totally enclosed systems with well defined and easily controlled discharge points" (a baghouse in this case). Furthermore, "to avoid fugitive emissions of rock dust, these grinding processes are operated at negative pressure."

An additional analysis was performed by Bill Rogers, DEQ Air Quality Engineer, to verify the TSP emission estimates for both transfer processes, to determine the facility's uncontrolled and controlled potential to emit, and to classify the facility (A1, A2, or B). The analysis is incorporated into this technical memorandum as Appendix A.

The results of the analysis suggest a consistency between the emissions submitted in the application and the analysis performed by DEQ staff. The facility's uncontrolled potential to emit is estimated to be approximately 669 tons per year (T/yr) of TSP emissions, while the controlled potential to emit is estimated to be approximately 0.669 T/yr.

2.1.2 VOC EMISSIONS

VOC emissions were estimated using a risk assessment study on the emissions of VOC's from a very similar Envirosafe stabilization process operating in Oregon, Ohio. A chemical analysis of the "worst case" material was supplied by Envirosafe and was used to determine the VOC content and emissions. The waste that was modeled for the Ohio site is a sludge with volatile concentrations above that typically handled within ESII's RTF in Elmore County.

The results of the analysis indicate all VOC species are below the acceptable ambient concentration (AAC), as defined in IDAPA 16.01.01.585, for non-carcinogenic air toxics and below the acceptable ambient concentration for carcinogens (AACC), as defined in IDAPA 16.01.01.586, for carcinogenic air toxics. In fact, all VOC concentrations from the waste stream are below ten percent (10%) of the AAC and AACC. A comparison of the modeled waste stream VOC concentrations to their corresponding AAC and AACC is presented as Appendix B.

2.1.3 METALS EMISSIONS

The waste streams typically handled at the RTF consist of metal-laden dusts and soils with measurable metallic content. Again, a typical waste stream was analyzed for all possible metals that may be handled by this facility. All regulated metals that are considered as toxic air pollutants, including lead, a criteria pollutant, were modeled by the applicant and their respective concentrations were compared to the AAC and AACC (lead was compared to the NAAQS). The results of the analysis indicated that the concentrations of those metals modeled fall below 10% of the AAC, AACC and the NAAQS. Since all metal emissions are incorporated into the particulate, it is highly probable that the greatest percentage of the emissions will be captured by the facility's two baghouses. A comparison of the modeled waste stream metals concentrations to their corresponding AAC and AACC is also presented as Appendix B.

2.2.1 BAGHOUSES

Two baghouses will be used at the RTF to capture airborne dust. Particulate emissions from the existing transfer process will be routed to the general building ventilation baghouse. Particulate emissions from the proposed pneumatic transfer system will be routed to this baghouse. The general building ventilation baghouse will be upgraded to the following specifications to provide an air flow sufficient to maintain a net negative pressure within the building:

Stack Height	--	50 feet above grade (minimum)
Stack Diameter	--	36 inches (maximum)
Exit Exhaust Volume	--	24000 acfm (minimum)
Efficiency	--	99.9% @ 1 micron
Grain Loading	--	0.03 gr/dscf (guaranteed)

An integral pneumatic transfer baghouse will be installed at the RTF as part of the pneumatic conveying transfer process. The air used to convey the wastes to the staging hopper will be routed to a dedicated baghouse for particulate removal. A controlled discharge spout will be used to dispense wastes into trucks. In the discharge system, the material is transferred via the inner of two concentric feed pipes. Air is drawn through the outer of the two concentric pipes to remove dust generated from the material loading. The exhaust from the loading spout will be routed to the general building ventilation baghouse for particulate removal. The integral pneumatic transfer baghouse will have the following specifications:

Stack Height	--	50 feet above grade (minimum)
Stack Diameter	--	12 inches (maximum)
Exit Exhaust Volume	--	2200 acfm (minimum)
Efficiency	--	99.9% @ 1 micron
Grain Loading	--	0.03 gr/dscf (guaranteed)

3. Facility Classification

This facility is non-major as defined in IDAPA 16.01.01.006.54 because actual or allowable emissions of any regulated pollutant are below 100 tons per year. The facility is a non-designated facility as defined in IDAPA 16.01.01.006.25. This facility is classified as an A2 source because potential uncontrolled emissions are greater than 100 T/yr, but controlled emissions are less than 100 T/yr. The Standard Industrial Classification (SIC) for this facility is 9511 (Air and Water Resources and Solid Waste Management). The facility is located in Air Quality Control Region (AQCR) 63 and Zone 11.

The emissions from the RTF do not exceed the 250 T/yr potential emissions threshold for PSD. Therefore, the facility is not subject to PSD rules. None of the National Emission Standards for Hazardous Air Pollutants (NESHAP) rules apply for this facility, as the proposed activities do not fall under the listed source categories for listed chemicals. The emission sources proposed by ESII in this application do not fall under any of the individual industrial or source categories regulated by the New Source Performance Standards (NSPS). Therefore, this facility is not subject to any NSPS regulation or requirements.

4. Regulatory Review

ESII proposes to modify their existing transfer process by increasing the amount of material transferred. ESII also proposes to commence construction of a new air pollution emitting source. It is ESII contention that this facility will obtain a greater number of contracts to dispose of wastes (at Site B) with the installation of the proposed transfer process. This will, in turn, increase the amount of material transferred by the existing process. This source will emit TSP, PM-10, VOC, and metals to the atmosphere.

The following regulations are applicable for this proposed project:

IDAPA 16.01.01.201	Permit to Construct;
IDAPA 16.01.01.202	Application Procedures;
IDAPA 16.01.01.203	Permit Requirements for New and Modified Stationary Sources;
IDAPA 16.01.01.209	Procedures for Issuing Permits;
IDAPA 16.01.01.211	Conditions for Permits to Construct;
IDAPA 16.01.01.212	Obligation to Comply;
IDAPA 16.01.01.577	Ambient PM-10 Air Quality Standards;
IDAPA 16.01.01.585	Toxic Air Pollutants Non-Carcinogenic Increments;
IDAPA 16.01.01.586	Toxic Air Pollutants Carcinogenic Increments; and
IDAPA 16.01.01.625	Visible Emissions.

5. Modeling

Modeling for this proposed project was performed by the applicant using the EPA approved ISCST232 model. This analysis was reviewed by Chris Johnson, DEQ Air Quality Meteorologist. His analysis and comments are incorporated into this technical memorandum as Appendix C.

6. Fees

This facility is not a major facility as defined in IDAPA 16.01.01.008.14. Therefore, registration and registration fees in accordance with IDAPA 16.01.01.526 are not applicable.

RECOMMENDATION

Based on review of application materials and state and federal regulations, staff recommend Envirosafe Services of Idaho, Inc. be issued a Permit to Construct for the operation of their Rail Transfer Facility located in Elmore County, Idaho. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD Permit to Construct requirements.

BR/dcf:ESII/ESII.TM

cc: R. Wilkosz/TSB
P. Rayne/AFS
B. Monson/OPB
SWIRO
Source File
COF

Appendix A

EMISSION ANALYSIS

Company Name: Envirosafe Services of Idaho, Inc. (ESII)
Mailing Address: P.O. Box 400
City/State/Zip: Grand View, Idaho 83624–2275

Date Created: May 18, 1995
Date Last Modified: 28–Jun–95

Engineer: Bill Rogers

PARTICULATE EMISSIONS ANALYSIS – RAIL TRANSFER FACILITY, ELMORE COUNTY, IDAHO

Existing Waste Transfer Process

Transfer From Gondola Rail Car

Pollutant	Throughput[a] T/hr	Throughput[b] T/yr @8760hr/yr	Emission Factor[c] lb/T	Control Efficiency[d] %	Potential Uncontrolled Emissions lb/hr	Potential Uncontrolled Emissions[e] T/yr	Allowable Controlled Emissions lb/hr	Allowable Controlled Emissions[f] T/yr	Actual Controlled Emissions lb/hr	Actual Controlled Emissions[g] T/yr
Particulate – TSP	213	1865880	0.0062	99.9	1.3311	5.8301	0.0013	0.0058	0.0011	0.0022
Particulate – PM–10	213	1865880	0.0030	99.9	0.6296	2.7575	0.0006	0.0028	0.0005	0.0010

Transfer To Haul Truck

Pollutant	Throughput[a] T/hr	Throughput[b] T/yr @8760hr/yr	Emission Factor[c] lb/T	Control Efficiency[d] %	Potential Uncontrolled Emissions lb/hr	Potential Uncontrolled Emissions[e] T/yr	Allowable Controlled Emissions lb/hr	Allowable Controlled Emissions[f] T/yr	Actual Controlled Emissions lb/hr	Actual Controlled Emissions[g] T/yr
Particulate – TSP	213	1865880	0.0062	99.9	1.3311	5.8301	0.0013	0.0058	0.0011	0.0022
Particulate – PM–10	213	1865880	0.0030	99.9	0.6296	2.7575	0.0006	0.0028	0.0005	0.0010

Note:
a. 213 T/hr is the maximum throughput for this transfer process.
b. Based on maximum hourly throughput and 8760 hours per year of operation.
c. EF is from AP–42, Page 11.2.3–3

E = k*(0.0032)*((U/5) ^ 1.3/(M/2) ^ 1.4)

k = TSP	0.74
k = PM–10	0.35
U = Mean Wind Speed	5
M = Material Moisture Content	1

Normal Facility Throughput and Operating Schedule:

Hourly (T/hr)	170
Annual (T/yr)	707200
Op. Hours (hr/yr)	4160

d. Control efficiency of the general building ventilation baghouse.
e. Potential Uncontrolled Emissions are based on maximum throughput, the applicable emission factor, and no controls.
f. Allowable Controlled Emissions are based on maximum throughput, the applicable emission factor, and the control efficiency of the baghouse.
g. Actual Controlled Emissions are based on normal facility throughput, the applicable emission factor, normal annual operating hours, and control efficiency of the baghouse.

Proposed Pneumatic Transfer Process

Pneumatic Waste Transfer To Staging Hopper

Pollutant	Throughput[h] T/hr	Throughput[b] T/yr @8760hr/yr	Emission Factor[i] lb/T	Control Efficiency[j] %	Potential Uncontrolled Emissions lb/hr	Potential Uncontrolled Emissions[e] T/yr	Allowable Controlled Emissions lb/hr	Allowable Controlled Emissions[f] T/yr	Actual Controlled Emissions lb/hr	Actual Controlled Emissions[g] T/yr
Particulate – TSP	50	438000	1.5	99.9	75	328.5	0.075	0.3285	0.1211	0.2519
Particulate – PM–10	50	438000	0.75	99.9	37.5	164.25	0.0375	0.1642	0.0605	0.1259

Note:
h. 50 T/hr is the maximum throughput for this transfer process.
i. EF is from AP–42, Section 8.18. PM–10 is assumed to be half of TSP.
j. Control efficiency of the dedicated pneumatic transfer baghouse.

Truck Loadout From Staging Hopper
**Emissions are routed to general ventilation baghouse.*

Pollutant	Throughput[h] T/hr	Throughput[b] T/yr @8760hr/yr	Emission Factor[i] lb/T	Control Efficiency[j] %	Potential Uncontrolled Emissions lb/hr	Potential Uncontrolled Emissions[e] T/yr	Allowable Controlled Emissions lb/hr	Allowable Controlled Emissions[f] T/yr	Actual Controlled Emissions lb/hr	Actual Controlled Emissions[g] T/yr
Particulate – TSP	50	438000	1.5	99.9	75	328.5	0.075	0.3285	0.1211	0.2519
Particulate – PM–10	50	438000	0.75	99.9	37.5	164.25	0.0375	0.1642	0.0605	0.1259

Uncontrolled Potential to Emit (T/yr) ***669 As TSP***

Controlled Potential to Emit (T/yr) ***0.669 As TSP***

Appendix B

Dispersion Modeling Results
Envirosafe Services of Idaho
Rail Transfer Facility
Elmore County, Idaho

TAP	Pneumatic Emission Rate (lb/hr)	Gen. Bldg. Emission Rate (lb/hr)	Total Emission Rate (lb/hr)	Maximum Concentration (8 hour) (ug/m3)	Maximum Concentration (annual) (ug/m3)	AAC (ug/m3)	Percentage of AAC	Percentage of de minimus	EL (lb/hr)
NON-CARCINOGENIC TAPs									
antimony	0.0000700	0.0000100	0.0000800	0.0006779		5	0.0136%	0.1356%	0.033
barium	0.0000200	0.0000040	0.0000240	0.0002030		5	0.0041%	0.0406%	0.033
copper	0.0000000	0.0002600	0.0002600	0.0022033		100	0.0022%	0.0220%	0.067
mercury	0.0000015	0.0000003	0.0000018	0.0000152		1	0.0015%	0.0152%	0.007
selenium	0.0000200	0.0000024	0.0000224	0.0001895		2	0.0095%	0.0948%	0.013
silver	0.0000100	0.0000021	0.0000121	0.0001029		1	0.0103%	0.1029%	0.007
thallium	0.0000045	0.0000007	0.0000052	0.0000439		1	0.0044%	0.0439%	0.007
vanadium	0.0000100	0.0000018	0.0000118	0.0001000	Resp. incr.	0.5 1	0.0200%	0.2000%	0.007
zinc	0.0213000	0.0032000	0.0245000	0.2076202		100	0.2076%	2.0762%	0.667
acetone	0.0000002	0.0000005	0.0000007	0.0000062		17,800	0.0000%	0.0000%	119
dibutyl phthalate	0.0000010	0.0000022	0.0000032	0.0000272		50 ~~86~~	0.0000%	0.0003%	0.333
ethyl benzene	0.0006000	0.0013100	0.0019100	0.0161859		4,350	0.0004%	0.0037%	29
naphthalene	0.0000009	0.0000019	0.0000028	0.0000234		500	0.0000%	0.0000%	3.33
phenol	0.0085300	0.0185600	0.0270900	0.2295686		190 ~~58~~	0.4591%	4.5914%	1.27
toluene	0.0003300	0.0007100	0.0010400	0.0088133		3,750	0.0002%	0.0024%	25
1,1,1-trichloroethane ?	0.0000004	0.0000008	0.0000012	0.0000104		19,100	0.0000%	0.0000%	127
xylene	0.0000000	0.0000000	0.0000000	0.0000001		4,350	0.0000%	0.0000%	29
CARCINOGENIC TAPs									
arsenic	0.0000200	0.0000022	* 0.0000222		0.0000005	0.00023 ~~0.00002~~	2.0208%	20.2078%	* 0.000015
beryllium	0.0000060	0.0000009	0.0000069		0.0000001	0.00420	0.0034%	0.0344%	0.000025
cadmium	0.0000800	0.0000100	* 0.0000900		0.0000019	0.00056	0.3367%	3.3672%	0.000037
chromium	0.0001600	0.0000300	* 0.0001900		0.0000040	0.00008	4.7961%	47.9608%	0.0000056
nickel	0.0000300	0.0000091	* 0.0000391		0.0000008	0.00420	0.0195%	0.1950%	0.000027
benzene	0.0002700	0.0005800	* 0.0008500		0.0000178	0.12000	0.0148%	0.1484%	0.0008
benzo(a)pyrene	0.0000100	0.0000300	* 0.0000400		0.0000008	0.00030	0.2794%	2.7935%	0.000002
bis(2-ethylhexyl)phthalate	0.0000100	0.0000300	0.0000400		0.0000008	4.20000	0.0000%	0.0002%	0.028
chloroform	0.0000900	0.0002000	* 0.0002900		0.0000061	0.04300	0.0141%	0.1413%	0.00028
methylene chloride	0.0000003	0.0000006	0.0000008		0.0000000	0.24000 0.28	0.0000%	0.0001%	0.0019
PCB ?	0.0003700	0.0004500	* 0.0008200		0.0000172	0.01000	0.1718%	1.7180%	0.0000046
tetrachloroethylene	0.0048200	0.0104900	* 0.0153100		0.0003208	2.10000	0.0153%	0.1527%	0.013
trichloroethylene	0.0001700	0.0003700	* 0.0005400		0.0000113	0.07700	0.0147%	0.1469%	0.00051
CRITERIA POLLUTANTS									
particulate	0.0750000	0.0133000	0.0883000	0.74828	0.0018500	15.00000	0.0123%	0.1233%	
lead	0.0024400	0.0004300	0.0028700		0.0000601	1.50000	0.0040%	0.0401%	0.137
NOT LISTED									
dibenzofuran	0.0000008	0.0000017	0.0000024	0.0000208		0.00160	1.2973%	12.9729%	0.000011

0.6 T/yr.

Dibenzofuran is analyzed as a coal tar volatile compound for air toxics purposes.

$(0.6\ T/yr \times 145/8760\ hr)(2000\ lb/T) = 0.137\ lb\ Pb/hr$

Appendix C

June 30, 1995

M E M O R A N D U M

TO: Robert Wilkosz, Chief
Technical Services Bureau (TSB),
Permits and Enforcement (P&E)

FROM: Chris Johnson
Air Quality Meteorologist
TSB, P&E

THRU: Avijit Ray
Environmental Sciences Manager
TSB, P&E

SUBJECT: Modeling/ impact assessment of Envirosafe (Mt. Home)

1. SUMMARY

The applicant operates a petroleum rail transfer facility outside Mountain Home. The proposed modification includes increases in throughput. Increases as a result of the proposed modification were modeled by Envirosafe, and vefified by DEQ. The pollutant modeled was particulates. Ambient impacts were predicted to be insignificant.

2. DISCUSSION

2.1 Project Description

The applicant proposed to modify the operations of their Mountain Home area rail transfer facility. This facility is separate from the Grandview waste handling facility. The emissions are routed through a baghouse.

2.2 Applicable Air Quality Impact Limits

For criteria pollutants, the applicable impact limit is the National Ambient Air Quality Standard (NAAQS). For PM-10, the NAAQS is 150 ug/m3 24 hour average and 50 ug/m3 annual average. Toxic Air Pollutants must be emitted above DEQ screening levels to warrant ambient impact analysis. DEQ engineering review indicated that all TAP emission rates were below these emission limits.

2.3 Background Concentrations

Not necessary since PM-10 impacts were predicted to be insignificant.

2.4 Cocontributing Sources

Not necessary since PM-10 impacts were predicted to be insignificant.

2.5 Modeling Impact Assessment

The applicant supplied refined modeling consistent with the proposed modification. The Industrial Source Complex model, ISC2, was used with 1991 Mountain Home meteorology to estimate potential impacts. The Mountain Home meteorology data was not available to DEQ, so that DEQ's model verifications were performed with 1985 Boise meteorological data. DEQ review verified the applicant's, plus prepared a maximum 24 hour average impact projection. 2 sources were modeled, as identified by the applicant and verified by DEQ engineering staff.

The maximum ambient PM-10 impacts were predicted to be ESE of the source, within 100 meters. They were insignificant for PM-10 for all averaging periods.

The chart below compares predicted pollutant concentrations with allowable limits, and demonstrates that the activity proposed will not lead to excess impacts at the emission rates proposed.

POLLUTANT	Emissions (g/sec)	Predicted conc. (ug/m3)	Ave. Per.	Allowable conc. (ug/m3)	Impact % limit
PM-10	.0096	.002	ann.	1.0 *	0.2%
PM-10	.0096	.61	24 hr	5.0 *	0.2%

*** Allowables based on significant concentration level**

MODELING RESULTS

Modeling results are contained in the applicant's May 5, 1995 submittal. Electronic copies of the DEQ prapared 24 hour average analysis are saved on fileserver as ESIIMOD.OUT.

cc: Bill Rogers
COF 1.1 (w/o attachments)

SCREEN2 MODELING ANALYSIS

Company Name: Envirosafe Services of Idaho Inc. (ESII)
Mailing Address: P.O. Box 400
City/State/Zip: Grandview, Idaho 83624–2275

Date Created: June 15, 1995
Date Last Modified: 15–Jun–95

Engineer: Bill Rogers

Equipment Modeled: *General Building Ventilation Baghouse*

Existing Transfer Process

Pollutant	Max. 1hour Concentration[a] ug/m3	Emission Rate[b] lb/hr	Persistence Factor	Averaging Period	Operating Schedule[c]	Modeled Conc.[d] ug/m3	NAAQS ug/m3	Significant Contribution[e] ug/m3
Particulates as PM–10[f]–Hourly	0.02248	0.0010	0.4	24hr	24	0.0090	150	5.0
Particulates as PM–10–Annual	0.02248	0.0021	0.125	Annual	4160	0.0043	50	1.0

Note:
a. Max. 1hour concentration is the SCREEN2 output based on the given emission rate.
b. Emission Rate is calculated based on maximim throughput.
c. Operating Schedule assumes contiuous operation (24 hour/day), but annual is based on actual hours.
d. Concentration is the estimated impact to ambient air based on the SCREEN2 output, submitted emission rate, persistance factor and operating schedule.
e. Per IDAPA 16.01.01.006.88.
f. PM–10 emissions were calculated using the maximum throughput and AP–42 emission factor page 11.2.3–3.

Stack Parameters:

Stack Height (ft)	50
Stack Diameter (ft)	3
Exhaust Flowrate (acfm)	24000
Exhaust Temperature (F)	52

Equipment Modeled: *Pneumatic Transfer Process Baghouse*

Pneumatic Transfer Process

Pollutant	Max. 1hour Concentration[a] ug/m3	Emission Rate[b] lb/hr	Persistence Factor	Averaging Period	Operating Schedule[c]	Modeled Conc.[d] ug/m3	NAAQS ug/m3	Significant Contribution[e] ug/m3
Particulates as PM–10[f]–Hourly	5.669	0.0605	0.4	24hr	24	2.2676	150	5.0
Particulates as PM–10–Annual	5.669	0.1259	0.125	Annual	4160	1.0769	50	1.0

Note:
a. Max. 1hour concentration is the SCREEN2 output based on the given emission rate.
b. Emission Rate is calculated based on maximim throughput.
c. Operating Schedule assumes contiuous operation (24 hour/day), but annual is based on actual hours.
d. Concentration is the estimated impact to ambient air based on the SCREEN2 output, submitted emission rate, persistance factor and operating schedule.
e. Per IDAPA 16.01.01.006.88.
f. PM–10 emissions were calculated using the maximum throughput and AP–42 emission factor Section 8.18.

Stack Parameters:

Stack Height (ft)	50
Stack Diameter (ft)	1
Exhaust Flowrate (acfm)	2200
Exhaust Temperature (F)	52

06/15/95

16:01:18
*** SCREEN2 MODEL RUN ***
*** VERSION DATED 92245 ***

ESII - General Building Ventilation Baghouse

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.126000E-03
STACK HEIGHT (M)	=	15.2400
STK INSIDE DIAM (M)	=	.9144
STK EXIT VELOCITY (M/S)	=	17.2482
STK GAS EXIT TEMP (K)	=	293.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL
BUILDING HEIGHT (M)	=	12.1920
MIN HORIZ BLDG DIM (M)	=	12.1920
MAX HORIZ BLDG DIM (M)	=	54.8640

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = 62.187 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
55.	.1096E-01	4	10.0	10.7	3200.0	15.37	4.71	7.13	SS
100.	.1575E-01	6	4.0	5.0	10000.0	17.09	4.07	7.15	SS
200.	.1995E-01	6	4.0	5.0	10000.0	17.09	7.73	9.21	SS
300.	.1783E-01	6	4.0	5.0	10000.0	17.09	11.23	10.47	SS
400.	.1536E-01	6	4.0	5.0	10000.0	17.09	14.64	11.32	SS
500.	.1376E-01	6	4.0	5.0	10000.0	17.09	17.97		

```
12.35     SS
    600.    .1236E-01     6      4.0      5.0 10000.0    17.09    21.24
13.35     SS
    700.    .1135E-01     6      3.5      4.4 10000.0    18.15    24.46
13.82     SS
    800.    .1034E-01     6      3.5      4.4 10000.0    18.15    27.63
14.45     SS

 MAXIMUM 1-HR CONCENTRATION AT OR BEYOND    55. M:
    122.    .2248E-01     6      4.0      5.0 10000.0    17.09     4.93
 8.20     SS

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

  *** CAVITY CALCULATION - 1 ***        *** CAVITY CALCULATION - 2
***
   CONC (UG/M**3)       =     .1852E-01     CONC (UG/M**3)       =
.0000
   CRIT WS @10M (M/S)   =     12.47         CRIT WS @10M (M/S)   =
99.99
   CRIT WS @ HS (M/S)   =     13.56         CRIT WS @ HS (M/S)   =
99.99
   DILUTION WS (M/S)    =      6.78         DILUTION WS (M/S)    =
99.99
   CAVITY HT (M)        =     17.51         CAVITY HT (M)        =
12.25
   CAVITY LENGTH (M)    =     54.94         CAVITY LENGTH (M)    =
17.07
   ALONGWIND DIM (M)    =     12.19         ALONGWIND DIM (M)    =
54.86

CAVITY CONC NOT CALCULATED FOR CRIT WS > 20.0 M/S.  CONC SET = 0.0


      ****************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ****************************************

  CALCULATION          MAX CONC     DIST TO    TERRAIN
   PROCEDURE          (UG/M**3)     MAX (M)     HT (M)
 -------------      -----------    -------    -------
 SIMPLE TERRAIN       .2248E-01       122.         0.

 BUILDING CAVITY-1    .1852E-01        55.        --   (DIST = CAVITY
LENGTH)
 BUILDING CAVITY-2    .0000            17.        --   (DIST = CAVITY
LENGTH)


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** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
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06/15/95

15:40:10
*** SCREEN2 MODEL RUN ***
*** VERSION DATED 92245 ***

ESII - Pneumatic Transfer Process Baghouse

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	.762300E-02
STACK HEIGHT (M)	=	15.2400
STK INSIDE DIAM (M)	=	.3048
STK EXIT VELOCITY (M/S)	=	14.2297
STK GAS EXIT TEMP (K)	=	293.0000
AMBIENT AIR TEMP (K)	=	293.0000
RECEPTOR HEIGHT (M)	=	.0000
URBAN/RURAL OPTION	=	RURAL
BUILDING HEIGHT (M)	=	12.1920
MIN HORIZ BLDG DIM (M)	=	12.1920
MAX HORIZ BLDG DIM (M)	=	54.8640

BUOY. FLUX = .000 M**4/S**3; MOM. FLUX = 4.703 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
55.	4.002	6	2.5	3.2	10000.0	15.36	2.34	6.89	SS
100.	5.256	6	2.0	2.5	10000.0	15.49	4.07	8.48	SS
200.	4.404	6	1.5	1.9	10000.0	15.96	7.73	9.68	SS
300.	3.596	6	1.5	1.9	10000.0	15.96	11.23	10.92	SS
400.	2.965	6	1.5	1.9	10000.0	15.96	14.64	11.74	SS
500.	2.560	6	1.5	1.9	10000.0	15.96	17.97		

```
12.76    SS
    600.   2.353        6     1.0    1.3 10000.0   18.43   21.24
12.12    SS
    700.   2.237        6     1.0    1.3 10000.0   18.43   24.46
13.12    SS
    800.   2.070        6     1.0    1.3 10000.0   18.43   27.63
13.81    SS

 MAXIMUM 1-HR CONCENTRATION AT OR BEYOND    55. M:
    122.   5.669        6     2.0    2.5 10000.0   15.49    4.93
 9.72    SS

  DWASH=   MEANS NO CALC MADE (CONC = 0.0)
  DWASH=NO MEANS NO BUILDING DOWNWASH USED
  DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
  DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
  DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

  *** CAVITY CALCULATION - 1 ***       *** CAVITY CALCULATION - 2
***
   CONC (UG/M**3)      =     2.652         CONC (UG/M**3)      =
.0000
   CRIT WS @10M (M/S)  =      5.27         CRIT WS @10M (M/S)  =
99.99
   CRIT WS @ HS (M/S)  =      5.73         CRIT WS @ HS (M/S)  =
99.99
   DILUTION WS (M/S)   =      2.87         DILUTION WS (M/S)   =
99.99
   CAVITY HT (M)       =     17.51         CAVITY HT (M)       =
12.25
   CAVITY LENGTH (M)   =     54.94         CAVITY LENGTH (M)   =
17.07
   ALONGWIND DIM (M)   =     12.19         ALONGWIND DIM (M)   =
54.86

CAVITY CONC NOT CALCULATED FOR CRIT WS > 20.0 M/S.  CONC SET = 0.0


      ****************************************
      *** SUMMARY OF SCREEN MODEL RESULTS ***
      ****************************************

  CALCULATION        MAX CONC     DIST TO    TERRAIN
   PROCEDURE        (UG/M**3)     MAX (M)     HT (M)
 --------------    -----------   -------    -------
 SIMPLE TERRAIN      5.669          122.         0.

 BUILDING CAVITY-1   2.652           55.        --   (DIST = CAVITY
LENGTH)
 BUILDING CAVITY-2   .0000           17.        --   (DIST = CAVITY
LENGTH)


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** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
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