



क्षेत्रीय कार्यालय एवं प्रयोगशाला
उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड, अलीगढ़

REGIONAL OFFICE & LABORATORY

UTTAR PRADESH POLLUTION CONTROL BOARD, ALIGARH

पत्रांक 840/OA No-348/2017/23

दिनांक 01-07-23

सेवा में,

रजिस्ट्रार महोदय,
मा0 राष्ट्रीय हरित अधिकरण,
नई दिल्ली।

विषय:-मा0 राष्ट्रीय हरित अधिकरण, नई दिल्ली में मै0 अल-दुआ फूड प्रोसेसिंग प्रा0लि0, ग्राम-अमरपुर कोडला, मथुरा बाई पास रोड अलीगढ़ के विरुद्ध शैलेश सिंह द्वारा दायर ओरिजनल एप्लीकेशन संख्या-348/2017, एक्सक्यूशन एप्लीकेशन संख्या-33/2022 एवं एक्सक्यूशन एप्लीकेशन संख्या-15/2023 दिनांक 15.05.2023 के अनुपालन के सम्बन्ध में।

महोदय,

कृपया उपरोक्त विषयक का सन्दर्भ ग्रहण करने की कृपा करें। उक्त के सम्बन्ध में अवगत कराना है कि मा0 राष्ट्रीय हरित अधिकरण, नई दिल्ली में मै0 अल-दुआ फूड प्रोसेसिंग प्रा0लि0, ग्राम-अमरपुर कोडला, मथुरा बाई पास रोड अलीगढ़ के विरुद्ध शैलेश सिंह द्वारा दायर ओरिजनल एप्लीकेशन संख्या-348/2017, एक्सक्यूशन एप्लीकेशन संख्या-33/2022 एवं एक्सक्यूशन एप्लीकेशन संख्या-15/2023 दिनांक 15.05.2023 के अनुपालन में सन्दर्भित उद्योग का निरीक्षण केन्द्रीय प्रदूषण नियंत्रण बोर्ड एवं स्टेट प्रदूषण नियंत्रण बोर्ड के अधिकारियों द्वारा संयुक्त निरीक्षण दिनांक 31.05.2023 को किया गया। संयुक्त निरीक्षण आख्या मा0 राष्ट्रीय हरित अधिकरण, नई दिल्ली की वेब साईट-judicialngt@gov.in पर अपलोड की जा रही है। उक्त आख्या आख्या आपके अवलोकनार्थ एवं अग्रिम आवश्यक कार्यवाही हेतु सादर प्रेषित है।

संलग्नक:-उपरोक्तानुसार।

भवदीय

(डॉ0 जे0पी0 सिंह)

क्षेत्रीय अधिकारी (प्र0)

eh

प्रतिलिपि:-निम्नलिखित को सूचनार्थ एवं अग्रिम आवश्यक कार्यवाही हेतु सादर प्रेषित।

1. मुख्य पर्यावरण अधिकारी वृत्त-4), उ0प्र0 प्रदूषण नियंत्रण बोर्ड, लखनऊ।
2. श्री प्रदीप मिश्रा, बोर्ड अधिवक्ता, बी-235, सेक्टर-19, नोएडा।

क्षेत्रीय अधिकारी (प्र0)

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उत्तर प्रदेश प्रदूषण नियंत्रण बोर्ड, अलीगढ़

REGIONAL OFFICE & LABORATORY

UTTAR PRADESH POLLUTION CONTROL BOARD, ALIGARH

पत्रांक 8.12/0A-348/17/2023

दिनांक 30.06.2023

सेवा में,

मुख्य पर्यावरण अधिकारी (वृत्त-4),
उ०प्र० प्रदूषण नियंत्रण बोर्ड,
लखनऊ।

विषय:—मा० राष्ट्रीय हरित अधिकरण, नई दिल्ली में योजित ई०ए० संख्या-33/2022 इन ई०ए० संख्या-58/2018 इन ओ०ए० संख्या-348/2017 शैलेश सिंह बनाम मै० अल-दुआ फूड प्रोसेसिंग प्रा०लि० व अन्य में पारित आदेश दिनांक 11.11.2022 के अनुपालन के सम्बन्ध में।

महोदय,

कृपया उपरोक्त विषयक बोर्ड मुख्यालय के पत्र संख्या-एच96426 दिनांक 28.06.2023 का सन्दर्भ ग्रहण करने का कष्ट करें। उक्त के सम्बन्ध में अवगत कराना है कि मै० मै० अल-दुआ फूड प्रोसेसिंग प्रा०लि०, ग्राम-अमरपुर कोंडला, मथुरा बाईपास रोड, तहसील-कोल, जनपद-अलीगढ़ का संयुक्त निरीक्षण दिनांक 31.05.2023 को किया गया। संयुक्त निरीक्षण आख्या पत्र के साथ संलग्न कर आपके अवलोकनार्थ एवं अग्रिम आवश्यक कार्यवाही हेतु सादर प्रेषित है।

संलग्नक:—उपरोक्तानुसार।

भवदीय

(डॉ० जे०पी० सिंह)

क्षेत्रीय अधिकारी (प्र०)

संयुक्त निरीक्षण रिपोर्ट

माननीय राष्ट्रीय हरित अधिकरण द्वारा शैलेश सिंह बनाम अल-दुआ फूड प्रोसेसिंग प्रा0 लि0 के Execution Application in 15/2023 दिनांक 15.05.2023 में पारित आदेश निम्नलिखित है:

1. This application seeks execution of order of this Tribunal dated 11.11.2022 in Execution Application in 33/2022 in Execution Application No. 58/2018 in O.A. No. 348/2017, Shailesh Singh v. M/s AlDua Food Processing Pvt. Ltd. & Ors. By the said order, the Tribunal directed as follows:-

"4. In view of above, the State PCB/CPCB may look into the matter and take remedial action in accordance with law. The State PCB may file an action taken report with the Registrar General of this Tribunal within two months by e-mail at judicialngt@gov.in preferably in the form of searchable PDF/OCR Support PDF and not in the form of Image PDF.

We also direct that a copy of order of this Tribunal dated 26.9.2019, in EA No. 58/2018 in OA No. 348/2017, Shailesh Singh vs. M/s Al-Dua Food Processing Pvt. Ltd. & Ors. be forwarded to District Judge, Aligarh for being entrusted to jurisdictional Civil Court for execution under Section 25(2) of the NGT Act, 2010."

2. In the current execution application, it is stated that violations are still continuing.

3. None appears for the applicant to press the application. We have however perused the application and considered the matter.

4. In view of above order, the applicant is at liberty to raise the said issue before the jurisdictional Civil Court where execution stands entrusted. Only other issue which remains is compliance of direction to the State PCB/CPCB to submit a report to this Tribunal. Let the same may be now filed within one month.

मा0 राष्ट्रीय हरित अधिकरण, नई दिल्ली में मै0 अल-दुआ फूड प्रोसेसिंग प्रा0 लि0, ग्राम-अमरपुर कोडला, मथुरा बाई पास रोड अलीगढ़ के विरुद्ध शैलेश सिंह द्वारा दायर ओरिजनल एप्लीकेशन संख्या-348/2017, एक्सक्यूशन एप्लीकेशन संख्या-33/2022 एवं एक्सक्यूशन एप्लीकेशन संख्या-15/2023 के अनुक्रम में केन्द्रीय प्रदूषण नियंत्रण बोर्ड के नामित सदस्य के साथ सन्दर्भित उद्योग का निरीक्षण दिनांक 31.05.2023 को किया गया। विस्तृत निरीक्षण आख्या निम्नवत् है-

1	उद्योग का नाम व पता	मै अल-दुआ फूड प्रोसेसिंग प्रा0 लि0, ग्राम-अमरपुर कोडला, मथुरा बाई पास रोड अलीगढ़।
2	निरीक्षण की तिथि	31.05.2023
3	उद्योग प्रतिनिधि का नाम	श्री अमित कुमार पाण्डेय, जनरल मैनेजर।
4	उद्योग की प्रकृति	इन्टीग्रेटेड स्लाटर हाउस।
5	उद्योग की संचालन स्थिति	निरीक्षण के समय संचालित पाया गया।
6	कच्चा माल	क्षमता-2000 भैंस/भैंसा/दिन, भेड/बकरी-3000/दिन
7	उत्पादन क्षमता	फ्रोजन मीट-350 एम0टी0/दिन
8	सह उत्पाद	एम0वी0एम0, टेलो, ब्लड मील।
		<ul style="list-style-type: none"> निरीक्षण के समय उपस्थित प्रतिनिधि द्वारा दी गयी सूचना के अनुसार भैंस/भैंसा का कुल स्लाटरिंग-1483 नग किया गया। निरीक्षण के समय उपस्थित प्रतिनिधि द्वारा अवगत कराया गया कि दिनांक 30.05.2023 को भैंस/भैंसा का कुल स्लाटरिंग-1483 नग किया गया था।
9	जल सहमति स्थिति	स्वीकृत 31.12.2024
10	वायु सहमति स्थिति	स्वीकृत 31.12.2024

11	जल स्रोत	टयूबवेल								
12	शुद्धिकरण संयंत्र की स्थिति	स्थापित/संचालित।								
13	उत्प्रवाह का अंतिम निस्तारण विन्दु	उद्योग से जनित उत्प्रवाह का प्रयोग करनाल टेक्नोलॉजी पर विकसित यूकेलिप्टरा के पेड़ों की सिंचाई एवं कृषि कार्य/प्लान्टेशन हेतु किया जाता है।								
14	आनलाइन सतत उत्प्रवाह मानिटरिंग की स्थिति/संचालित	स्थापित/संचालित								
15	जिला स्तरीय भूगर्भ जल प्राधिकरण अलीगढ़ द्वारा जारी जल दोहन हेतु अनुमति की स्थिति	जल दोहन हेतु राशर्त अनापत्ति प्रमाण पत्र वर्ष 2026 तक प्राप्त है।								
16	बोरवेल पर जल मापक यंत्र स्थापना का विवरण	तीनों बोरवेल पर जल के मापन हेतु इलैक्ट्रोमैग्नेटिक फ्लो मीटर स्थापित पाये गये।								
17	सहमति जल के अनुसार शुद्धिकृत उत्प्रवाह निस्तारण का विवरण	औद्योगिक-1200 कि०ली०/दिन घरेलू - 12 कि०ली०/दिन								
18	निरीक्षण के समय शुद्धिकृत उत्प्रवाह की मात्रा का विवरण	निरीक्षण के समय आनलाइन सतत उत्प्रवाह अनुश्रवण व्यवस्था के साथ स्थापित फ्लोमीटर के डिस्पले पर शुद्धिकृत उत्प्रवाह-14.04 मी० ³ /घण्टा प्रदर्शित होता हुआ पाया गया, जिसके अनुसार एक दिन में (24 घण्टे) उत्प्रवाह शुद्धिकरण संयंत्र से निस्तारित शुद्धिकृत उत्प्रवाह की मात्रा लगभग-336.96 मी० ³ /दिन है।								
19	इरिगेशन मैनेजमेन्ट प्लांट के अनुसार शुद्धिकृत उत्प्रवाह के रिसाईकिल एवं आन्तरिक उपयोग का विवरण	<ul style="list-style-type: none"> • कुल शुद्धिकृत उत्प्रवाह की मात्रा - 336.96 मी०³/दिन है। • एरिगेशन मैनेजमेन्ट प्लान फॉर यूटिलाइजेशन ऑफ ट्रीटेड इफलूएन्ट के अनुसार इकाई द्वारा शुद्धिकृत उत्प्रवाह का रिसाईकिल एवं आन्तरिक उपयोग - 120 मी०³/दिन किया जाता है। • शेष शुद्धिकृत उत्प्रवाह का प्रयोग सिंचाई में लगभग-216.96 मी०³/दिन किया जाता है। • प्रत्येक वर्ष में कुल शुद्धिकृत उत्प्रवाह का रिसाईकिल एवं आन्तरिक उपयोग-120 मी०³/दिन x 300 दिन = 36000 मी०³/वर्ष। 								
20	इरिगेशन मैनेजमेन्ट प्लान के पेज संख्या-8 के अनुसार वाटर कन्जेशन का विवरण-	<p>A. Water required for area under karnal Plantation technology</p> <ul style="list-style-type: none"> • Water required for irrigation with 300 days @ 225 m³/day/ha at an interval of 5 Days. • Treated waste water used 225 m³ x 6.4 ha. x 60 cycles = 86400 m³. <p>B. Water required for area under plantation and cropping</p> <ul style="list-style-type: none"> • Water required for irrigation with 300 Days @ 225 m³/day/ha at an interval of 8 Days. • Treated Waste water used 225 m³ X 6.0 ha. X 38 Cycles = 51300 M³. • The total treated waste water used = 86400+51300 = 137700 m³ <table border="1"> <thead> <tr> <th>Location</th> <th>Treated waste water as per CPCB Protocol & Crop requirement</th> <th>Area in ha</th> <th>Effluent used (M³)</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Location	Treated waste water as per CPCB Protocol & Crop requirement	Area in ha	Effluent used (M ³)				
Location	Treated waste water as per CPCB Protocol & Crop requirement	Area in ha	Effluent used (M ³)							

Area under Karnal Technology	225 X 60 Cycles 13500	6.4	86400
Area under plantation & cropping	225 X 38 Cycles = 850	6.0	51300
Total		12.4	137700

The total 12.4 ha of land availability has been identified. Hence, the quantity of effluent to be used in identified command area shall be 86400 m³/year for kanral plantation and 51300 m³/year under plantation & cropping. The total utilization of treated effluent will be 137700 m³/year which is higher as compared to effluent generated 132779.52 m³/year by the slaughter house.

So the waste water consumption capacity is more than waste water generation as per CPCB/UPPCB norms. ऐरिगेशन प्लांट की छायाप्रति संलग्न है। (संलग्नक-1)

23	निरीक्षण के समय ऐरिगेशन मैनेजमेन्ट प्लान के अनुसार शुद्धिकृत उत्प्रवाह के उपयोग का विवरण:	<ul style="list-style-type: none"> करनाल टेक्नॉलोजी पर विकसित पेड़ों के अन्तर्गत क्षेत्र-6.4 हैक्टेयर है। निरीक्षण के समय सिंचाई हेतु प्रयोग किये जाने वाले शुद्धिकृत उत्प्रवाह की मात्रा 216.96 मी³/दिन पायी गयी, जिसके आधार पर करनाल टेक्नॉलोजी में पर विकसित 6.4 हैक्टेयर भूमि पर रोपित वृक्षों के सिंचाई में प्रयोग किये जाने वाले शुद्धिकृत उत्प्रवाह का उपयोग 216.96 m³ x 6.4 ha. x 60 cycles = 83312.64 m³/वर्ष है। फसल एवं वृक्षारोपण के अन्तर्गत क्षेत्र-6.0 हैक्टेयर भूमि है। निरीक्षण के समय सिंचाई हेतु प्रयोग किये जाने वाले शुद्धिकृत उत्प्रवाह की मात्रा 216.96 मी³/दिन पायी गयी, जिसके आधार पर फसल एवं वृक्षारोपण में 6.0 हैक्टेयर भूमि पर रोपित फसल एवं वृक्षों की सिंचाई में प्रयोग किये जाने वाले जल का विवरण-49466.88 मी³/वर्ष है। <p>कुल शुद्धिकृत उत्प्रवाह के उपयोग की मात्रा-83312.64 मी³/वर्ष + 49466.88 मी³/वर्ष = 132779.52 मी³/वर्ष है, जो ऐरिगेशन मैनेजमेन्ट प्लान में सिंचाई में प्रयोग हेतु कुल अंकित शुद्धिकृत उत्प्रवाह की मात्रा 137700 से कम है, जिससे प्रतीत होता है कि इकाई द्वारा शुद्धिकृत उत्प्रवाह का प्रयोग सिंचाई में किया जा रहा है।</p>
24	ई0टी0पी0 का विवरण	<ul style="list-style-type: none"> ई0टी0पी0 क्षमता-1500 कि0ली0/दिन निरीक्षण के समय ई0टी0पी0 02 स्टेज ऐरियेशन सिस्टम के साथ टर्सरी उपचार (ए.सी.एफ. एवं पी.सी.एफ.) पद्धति पर प्राथमिक फिजिकल ट्रीटमेन्ट, केमिकल ट्रीटमेन्ट, रोकेंग्डी ट्रीटमेन्ट के रूप में बायोलोजिकल ट्रीटमेन्ट आन एक्टिवेटिड स्लज प्रोसेरा एवं टर्सरी ट्रीटमेन्ट के साथ फिल्टरेशन व्यवस्था के साथ स्थापित है। शुद्धिकृत उत्प्रवाह में स्थापित इकाईयों का विवरण निम्नवत् है- <ul style="list-style-type: none"> बार स्क्रीन होल्टिंग टैंक

		<ul style="list-style-type: none"> • सेटरी ड्रम रत्रीम 02नग (प्रत्येक की क्षमता 100 मी³/घण्टा है। • इनवालाइजेशन टैंक (एयर डिप्यूजर फर्निश पर) 01नग • प्राइमरी क्लेरिफायर • डैफ फिडिंग टैंक • पलेश गिवरिंग टैंक • डैफ • कफर टैंक • यू0एरा0वी0आर0 • एरियेशन टैंक (प्रथम) • सेकेण्ड्री क्लेरिफायर • एरियेशन टैंक (द्वितीय) • सेकेण्ड्री क्लेरिफायर • रलज टैंक • बेल्यूएट प्रेस • सेड फिल्टर • एक्टिवेटेड कार्बन फिल्टर • ओ0सी0ई0एम0एस0 • ट्रीटेड वाटर स्टोरेज टैंक
24	शुद्धिकृत उत्प्रवाह की मात्रा का विवरण	निरीक्षण के समय आनलाइन सतत् उत्प्रवाह अनुश्रवण व्यवस्था पर स्थापित फ्लोमीटर पर शुद्धिकृत उत्प्रवाह-14.04 मी ³ /घण्टा प्रदर्शित होता हुआ पाया गया। फ्लोमीटर पर प्रदर्शित हो रहे निस्तारित उत्प्रवाह की मात्रा-336.96 मी ³ /दिन निस्तारित होता हुआ पाया गया।
25	हाईड भण्डारण व्यवस्था का विवरण	निरीक्षण के समय इकाई द्वारा परिसर में हाईड के भण्डारण हेतु पृथक रूप से भण्डारण कक्ष बनाया गया है।
26	उत्प्रवाह का अन्तिम निस्तारण बिन्दु	शुद्धिकृत उत्प्रवाह का प्रयोग बागवानी, धुलाई, टैंकर द्वारा डस्ट के नियंत्रण हेतु इकाई परिसर में एवं आस-पास किया जाता है तथा इकाई द्वारा लगभग 12.4 हैक्टेयर क्षेत्रफल में करनाल टैक्नॉलोजी पर विकसित यूकेलिप्टस एवं कृषि कार्य तथा ग्रीन वेल्ड की सिंचाई में शुद्धिकृत उत्प्रवाह का प्रयोग किया जाता है।
27	ओ0सी0ई0एम0एस0 की स्थिति का विवरण	शुद्धिकृत उत्प्रवाह के सतत् अनुश्रवण हेतु आनलाइन सतत् मानिट्रिंग सिस्टम स्थापित एवं संचालित पाया गया। आनलाइन उत्प्रवाह मानिट्रिंग सिस्टम केन्द्रीय प्रदूषण नियंत्रण बोर्ड एवं उ0प्र0 प्रदूषण नियंत्रण बोर्ड के सर्वर से सम्बद्ध है।
28	दुर्गन्ध के नियंत्रण हेतु व्यवस्था का विवरण	निरीक्षण के समय रेण्डिंग प्लाण्ट के संचालन से जनित दुर्गन्ध के नियंत्रण हेतु वैट स्क्रबर, कन्डेसर बायोफिल्टर स्थापित एवं संचालित पाया गया।
29	वायु प्रदूषण श्रोत, ईंधन एवं वायु प्रदूषण नियंत्रण व्यवस्था का विवरण	निरीक्षण के समय इकाई में स्टीम की आपूर्ति हेतु 06 टी.पी. एच. क्षमता के 02 नग ब्यॉयलर स्थापित पाया गया, जिसमें से 01 नग ब्यॉयलर स्टेण्डबाई के रूप में स्थापित पाया गया। ब्यॉयलर में ईंधन के रूप में लकड़ी एवं झाई इन्जेरटा का प्रयोग किया जाता है। वायु प्रदूषण नियंत्रण व्यवस्था के रूप

		में वेट स्क़ावर के साथ लगभग-30मीटर ऊंची एम्बोसिंग चिमनी स्थापित पायी गयी।
30	ब्लड मिल का विवरण	निरीक्षण के समय इकाई में भूस/भसा के स्लाटरिंग से जनिब ब्लड से ब्लड मिल बनाने हेतु ब्लड कोगूलटर प्लाण्ट क्षमता-3.5 मी0टन/ दिन स्थापित एवं संचालित पाया गया।
31	डी0जी0 सेट का विवरण	निरीक्षण के समय उद्योग में 500 के0टी0पी0 के 04नग, एवं 1000 के0टी0पी0 का 01 नग साईलेंट डी0जी0 सेट स्थापित पाये गये।
32	डी0जी0 सेट पर ध्वनि प्रदूषण नियंत्रण व्यवस्था का विवरण	एक्वास्टिक एन्व्लोजर के साथ पलू गैसा के निस्तारण हेतु चिमनी स्थापित है।
33	हाउस क्रीपिंग की स्थिति	संतोषजनक
34	ई0टी0पी0 के संचालन में खपत विद्युत के नापन हेतु पृथक एन्जी मीटर की स्थिति	स्थापित/संचालित लॉगबुक में नटेन की जा रही है।
35	ई0टी0पी0 के संचालन से जनित स्लज का विवरण	इकाई में ई0टी0पी0 स्लज लगभग-1 से 1.5 टी0पी0एच0 जनित होता है।
36	ई0टी0पी0 स्लज की प्रकृति	ऑर्गेनिक
37	भण्डारण/निस्तारण एवं उपचार की सुविधा का विवरण	निरीक्षण के समय इकाई प्रतिनिधि द्वारा अवगत कराया गया कि ई0टी0पी0 स्लज को वायो कम्पोस्ट खाद के रूप में स्टव के कृषि योग्य भूमि में प्रयोग किया जाता है तथा प्रयाग न होने की दशा में किसानों को आवश्यकतानुसार बेंच दिया जाता है।
38	प्राधिकार की स्थिति का विवरण	इकाई को उ0प्र0 प्रदूषण नियंत्रण बोर्ड, लखनऊ द्वारा सराई प्राधिकार दिनांक 03.01.2028 तक निर्गत है।

निरीक्षण के समय पाये गये तथ्यों के आधार पर आख्या :-

1. निरीक्षण के समय उद्योग संचालित पाया गया। उद्योग में भूस/भसा का पशुव्य, मीट प्रोसेसिंग एवं पैकिंग आदि का कार्य होता हुआ पाया गया।
2. उ0 प्र0 प्रदूषण नियंत्रण बोर्ड, लखनऊ द्वारा आनलाईन पत्र संख्या-66333 एवं 66641 दिनांक 02.01.2020 के माध्यम से सहमति जल/वायु दिनांक 31.12.2024 तक निर्गत किया गया है। सहमति जल/वायु की छायाप्रति संलग्न है। (संलग्नक-2)
3. उद्योग से जनित हडिडयों एवं ऑफेल्स के निस्तारण हेतु 150 मी0टन0/दिन क्षमता का ड्राइ रेपिडिंग प्लाण्ट स्थापित है। निरीक्षण के समय रेपिडिंग प्लाण्ट से जनित दुर्गन्ध के नियंत्रण हेतु वेट स्क़ावर कन्डेन्सर वायु फिल्टर स्थापित पाये गये।
4. उद्योग के स्लाटरिंग प्रक्रिया से जनित ब्लड से ब्लड मिल बनाने हेतु ब्लड कोगूलटर प्लाण्ट स्थापित एवं संचालित पाया गया। निरीक्षण के समय उपस्थित प्रतिनिधि द्वारा अवगत कराया गया कि ब्लड मिल की क्षमता-3.5 मी0टन/दिन है।
5. निरीक्षण के समय 1500 कि0ली0/दिन क्षमता का उत्प्रवाह शुद्धिकरण संयंत्र स्थापित एवं संचालित पाया गया।
6. उत्प्रवाह शुद्धिकरण संयंत्र से जनित शुद्धिकृत उत्प्रवाह को पाइपलाइन नेटवर्क के माध्यम से ई0टी0पी0 त लगभग-100 मी0 की दूरी पर करनाल टेकनॉलोजी में विकसित वृक्षों की सिंचाई, कृषि कार्य एवं ग्रीन बेल्ट में सिंचाई के रूप में प्रयोग किया जाता है।
7. निरीक्षण के समय ई0टी0पी0 का संचालन एवं रखरखाव सन्तोषजनक पाया गया। निरीक्षण के समय उद्योग में स्थापित उत्प्रवाह शुद्धिकरण संयंत्र के प्रारम्भिक, अन्तिम निस्तारण, एरियेशन टैंक, करनाल टेकनॉलोजी में सिंचाई हेतु निस्तारित किये जा रहे शुद्धिकृत उत्प्रवाह का नमूना एकत्रित कर क्षेत्रीय कार्यालय की प्रयोगशाला में जमा कराया गया था। विश्लेषण आख्या का विवरण निम्नवत् है-

क्र.स.	नमूना एकत्रण स्थल	नमूना एकत्रण दिनांक	मी०एम०	एस०एस० (मी०एम०/ली०)	सी०ओ०सी० (मी०एम०/ली०)	सी०ओ०सी० (मी०एम०/ली०)
1	आउटलेट ऑफ ई०टी०पी० डिफेंड करनाल टेक्नॉलोजी एस्टेशन	31.05.2023	7.4	40	20	240
2	इनलेट ऑफ ई०टी०पी०	31.05.2023	7.6	1092	620	1610
3	फाइनल आउटलेट ऑफ ई०टी०पी०	31.05.2023	7.3	40	20	242
निर्धारित मानक (मी०एम०/ली०)			8.5 - 8.5	60	30	260

एरियेशन टैंक

क्र.स.	नमूना एकत्रण स्थल	नमूना एकत्रण दिनांक	एम०एल०एस०एस०
1	एरियेशन टैंक	31.05.2023	3000
निर्धारित मानक			10-20000

8. निरीक्षण के समय उत्प्रवाह निस्तारण के अन्तिम बिन्दु पर आनलाइन सतत उत्प्रवाह गानोटरिम सिस्टम स्थापित एवं संचालित पाया गया, जिसके फोटोग्राफ संलग्न है। (संलग्नक-3)
9. इकाई द्वारा लगभग 12.4 हैक्टियर एरिया में करनाल टेक्नॉलोजी पर विकसित यूकेलिप्टस एवं कृषि कार्य/प्लानटेशन की सिंचाई में शुद्धिकृत उत्प्रवाह का प्रयोग किया जाता है। निरीक्षण के समय उत्प्रवाह शुद्धिकरण संयंत्र के अन्तिम निस्तारण बिन्दु पर स्थापित ड्रीपेट वाटर टैंक से पम्प कर पाइप लाइन के माध्यम से करनाल टेक्नॉलोजी पर विकसित पेड़ों की सिंचाई हेतु प्रयोग होता हुआ पाया गया। उक्त पाइप लाइन के प्रारम्भिक बिन्दु पर इलैक्ट्रो मैग्नेटिक फ्लो मीटर स्थापित पाया गया।
10. करनाल टेक्नॉलोजी पर विकसित ग्रीन वेल्ड एरिया के पास 15 दिवस का शुद्धिकृत उत्प्रवाह के भण्डारण हेतु लगभग 80x55 मीटर 75x50 मीटर एवं गहराई लगभग 4.5 मीटर पक्का लेगुन स्थापित पाया गया। उद्योग द्वारा दी गयी सूचना के अनुसार उपरिथत प्रतिनिधि लेगुन में शुद्धिकृत उत्प्रवाह भण्डारित पाया गया।
11. निरीक्षण के समय किसी प्रकार का उत्प्रवाह गडराक ड्रैन में निस्तारित होता हुआ नहीं पाया गया।
12. निरीक्षण के समय उपरिथत प्रतिनिधि द्वारा अवगत कराया गया कि इकाई में पशुवध से जनित गोबर (इन्जेस्टा) को ड्राई करने हेतु मशीन स्थापित है। गोबर (इन्जेस्टा) को ड्राई कर ब्यौयलर में ईंधन के रूप में प्रयोग किया जाता है।
13. निरीक्षण के समय उत्प्रवाह में एस०एस० की मात्रा को निम्नीकृत करने हेतु इकाई में Volute पेंस मशीन स्थापित एवं संचालित पायी गयी।
14. इकाई द्वारा सी०एल०आर०आई०, अदयार, चेन्नई द्वारा ई०टी०पी० की इन्वायमेंट जोडिड एण्ड परफार्मेंस अससामेंट ऑफ इफ्लूएंट ट्रीटमेंट प्लान्ट तैयार कराया गया है। उक्त संस्थापन द्वारा सी०एल०एफ० एवं यू०एल०एस०वी० स्थापित किये जाने हेतु संस्तुति की गयी थी। निरीक्षण के समय सी०एल०एफ० एवं यू०एल०एस०वी० स्थापित एवं संचालित पायी गयी। यू०एस०वी० से जनित मिथेन गैस की फ्लोरिंग हेतु फ्लैर स्टैक स्थापित एवं संचालित पायी गयी तथा मिथेन गैस के भण्डारण हेतु सीमेन्ट साइलो निर्मित पाया गया। रिपोर्ट संलग्न है। (संलग्नक-4)
15. निरीक्षण के समय ई०टी०पी० के संचालन को प्रदर्शित किये जाने हेतु वेव कैमरा स्थापित पाये गये। निरीक्षण के समय उपरिथत प्रतिनिधि द्वारा अवगत कराया गया कि उक्त वेव कैमरा सी०पी०सी०वी०/सी०प्र० प्रदूषण नियंत्रण बोर्ड के सर्वर से संचालित है।
16. पशुवधशाला के स्लाटरिंग प्रक्रिया से जनित सॉलिड गेटरियल को उद्योग परिसर के अन्दर ही रेप्लूम प्लान्ट के माध्यम से निस्तारित किया जाता है।

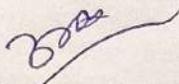
		गया रिपोर्ट के अनुसार 12.4 हेक्टेयर में जमीन पर विकसित पेड़ पौधों एवं कृषि कार्य हेतु सिंचाई हेतु 1.37,700 M ³ /वर्ष जल की आवश्यकता है। इकाई से जनित उत्प्रवाह के सापेक्ष आवश्यक जल की मात्रा कम है।
iv	The unit should carry out the calibration of the OCEMS, on regular basis and inform to CPCB & UPPCB	निरीक्षण के समय उत्प्रवाह के अंतिम निरंतरण बिन्दु के सतत अनुश्रवण हेतु ऑनलाइन सतत उत्प्रवाह मॉनिटरिंग सिस्टम स्थापित पाया गया। निरीक्षण के समय उपस्थित प्रतिनिधि द्वारा कैलीब्रेशन सर्टिफिकेट उपलब्ध कराया गया है।
v	Flow meter should also be installed at the inlet of pipe line, through which the effluent is being passed for irrigation area and maintain logbook.	निरीक्षण के समय पाइपलाइन के प्रारम्भिक बिन्दु पर इलैक्ट्रो मैग्नेटिक फ्लो मीटर स्थापित पाया गया।

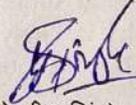
उद्योग के निरीक्षण के समय पाये गये तथ्यों के आधार पर निष्कर्ष/समापन टिप्पणी निम्नवत है:-

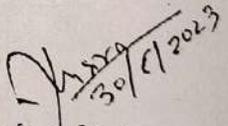
1. इकाई द्वारा उद्योग में स्थापित उत्प्रवाह शुद्धिकरण संयंत्र का सतत संचालन संतोषजनक पाया गया तथा भविष्य में भी सतत संचालन इस प्रकार किया जाये कि किसी भी दशा में उत्प्रवाह की गुणता बोर्ड के द्वारा निर्धारित मानकों से अधिक न हो।
2. इकाई द्वारा स्लॉटरिंग की विभिन्न प्रक्रिया में रिसाईकिल किये जा रहे शुद्धिकृत उत्प्रवाह के पाइप लाइन पर इलैक्ट्रोमैग्नेटिक फ्लो मीटर स्थापित किया जाये तथा लॉगबुक भी मैनेटेन किया जाये।
3. निरीक्षण के दौरान इकाई द्वारा सहमति जल/वायु में आरोपित शर्तों का पालन होने हुए पाया गया तथा भविष्य में भी इकाई द्वारा सहमति में उल्लिखित शर्तों का पालन किया जाना चाहिए।
4. इकाई द्वारा चन्द्रशेखर अजाद यूनीवर्सिटी ऑफ एग्रीकल्चर एण्ड टेक्नोलॉजी, कानपुर द्वारा एरीग्रेशन मैनेजमेन्ट प्लान फॉर द यूटीलाइजेशन ऑफ ट्रिटेटेड इफ्लूएन्ट द्वारा तैयार की गयी रिपोर्ट के अनुरूप इकाई से जनित शुद्धिकृत उत्प्रवाह का प्रयोग किया जाये एवं भू-गर्भ जल की गुणवत्ता की जांच प्रत्येक छः माह में कराया जाये तथा रिकार्ड संग्रह किया जाये।
5. इकाई में स्थापित उत्प्रवाह शुद्धिकरण संयंत्र की सी0एल0आर0आई0, अदयार, चेन्नई द्वारा ई0टी0पी0 की इन्चार्जमेन्ट ऑडिट एण्ड परफोरमेन्स असेसमेन्ट ऑफ इफ्लूएन्ट ट्रीटमेन्ट प्लांट की बनाई गयी रिपोर्ट का आवश्यकतानुसार समय-समय पर ऑडिट एवं ई0टी0पी0 परफोरमेन्स का इवेल्यूएशन कराया जाये एवं कोई सुझाव प्राप्त होने पर उसका अनुपालन सुनिश्चित किया जाये।
6. इकाई द्वारा चन्द्रशेखर अजाद यूनीवर्सिटी ऑफ एग्रीकल्चर एण्ड टेक्नोलॉजी, कानपुर द्वारा एरीग्रेशन मैनेजमेन्ट प्लान फॉर द यूटीलाइजेशन ऑफ ट्रिटेटेड इफ्लूएन्ट द्वारा बनवायी गयी है जिसका इकाई द्वारा हर छमाही में पुनः नया एसेसमेन्ट कराया जाये एवं रास्थान द्वारा जो भी सुझाव दिया जाये, उसका अनुपालन सुनिश्चित किया जाये।

आख्या आपके अवलोकनार्थ आवश्यक कार्यवाही हेतु सादर प्रेषित।


(अनुराग प्रसाद)
अवर अभियन्ता
उ0प्र0 प्रदूषण नियन्त्रण बोर्ड,
अलीगढ़


(अनंद कुमार)
सहायक पर्यावरण अभिगो
उ0प्र0 प्रदूषण नियन्त्रण बोर्ड,
अलीगढ़


(डॉ० जे०पी० सिंह)
क्षेत्रीय अधिकारी
उ0प्र0 प्रदूषण नियन्त्रण बोर्ड,
अलीगढ़


(वाई.एन. मिश्रा)
वैज्ञानिक "सी"
केन्द्रीय प्रदूषण नियन्त्रण बोर्ड,
नई दिल्ली

IRRIGATION MANAGEMENT PLAN FOR THE UTILIZATION OF TREATED EFFLUENT

M/S AL DUA FOOD PROCESSING PVT. LTD. VILLAGE
AMARPUR KODLA, TAHSEEL KOLE, MATHURA
BYPASS ROAD, DIST. ALIGARH 202001, UP



Y. K. Singh
Assistant Professor,
Department of Agronomy

Manoj Mishra
Assistant Director,
Directorate of Research

**CHANDRA SHEKHAR AZAD UNIVERSITY OF AGRICULTURE &
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Introduction

History of development of civilization clearly indicates that water had always been a fundamental building block for the growth of a healthy economy. With the growth of economy and improvement in the living standards, there is an ever-increasing demand for water from different sectors of the society. Availability of 1000 cubic meters of water per head is considered essential for a good living with assured food supply, adequate water for hygiene and for all the well-articulated commercial and industrial activities. The UN general assembly passed a resolution in February, 1993 calling upon the member countries to organize a World water day every year on March 22 for generating public awareness about water related issues.

India depends heavily on the southwest and northeast monsoons, both for the surface and groundwater resources. Conservation, sustainable and equitable use of rainwater is of paramount importance. For successful crop production, adequate water is a pre-requisite. This water may come directly from rains or through water stored above and below ground. The available water should be efficiently utilized for better crop production.

A slaughter house is an industrial facility where animals are processed for consumption as food products. Slaughterhouses act as a starting point of the meat industry, where the stock comes from farms / market to enter the food chain. They have existed as long as there have been settlements too large for individuals to rear their own stock for personal consumption. India is the largest resource of livestock population in the world. Livestock available for slaughtering comprises of animals namely - Buffaloes, Cattle, Sheep, Goats, Pigs and poultry. The Indian meat industry is currently on the track of a remarkable leap forward. The global demand for Indian meat and meat products is increasing considerably during the years. We also have one of the largest domestic markets for our meat and meat products. Slaughterhouses are also a good source of meat, protein and calories (FAO 1992), the reported per capita availability of meat in India is about 1.4kg per annum, which is rather low compared to 60-90kg in European countries. As the above data suggests slaughterhouse industry has a bright scope and future in India. The meat processing industry is one of the largest consumers of fresh water used in the agricultural and livestock industry worldwide. Slaughterhouses produce large amount of waste water because of the slaughtering process and cleaning of facilities. Slaughterhouses need significant treatment for a sustainable and safe discharge to the environment due to the high content of organics and nutrients. Therefore the treatment and final disposal of slaughterhouse's waste water are a public health necessity. Irrigation Management Plan is a necessity because it reduces the impact on environment, health hazards, etc. Thus an onsite treatment using combined processes would be the best option to treat and disinfect the slaughterhouse effluents. The slaughterhouse effluents are safely discharged on to the agricultural land. The livestock sector is an important component of Indian agriculture & India has a huge livestock population. Efficient utilization of livestock products is important to earn increased returns and sustain livestock production activities. During the last three to four decades, India has witnessed to green, white, yellow and blue revolution. The time has come to realize one more revolution i.e. red/pink revolution in the form of meat production.

In India the compounded average growth rate (CAGR) during the last two decades works out to be 4.5%. It is noted that about 10.6% Cattle, 10.6% buffaloes, 24.1% sheep, 58.7% Goats, 95.0% pigs and 190.0% chicken are slaughtered each year.

In India the production of meat is estimated at 6.27 million tones in 2010, which is 2.21% of the world's meat production. The contribution of meat from buffalo is about 23.33%, while cattle contributes about 17.34%, sheep 4.61%, Goat 9.36%, Pig 5.31%, Poultry 36.68% and other species 3.37%. Waste water effluents defined as the used water of an industry or community which contains dissolved and suspended matter.

The treatment of effluent is essential to prevent pollution of the receiving water. Waste water treatment is a process used to remove contaminants from waste water or sewage and convert it into an effluent that can be returned to the water cycle with minimum impact on the environment or directly reused. It is also called water reclamation because treated waste water can then be used for irrigation and other purposes except drinking.

The demand for water is continuously increasing agricultural production and its ever-increasing demand in industry. Therefore waste water reclamation and reusing the water is an urgent need especially in drought areas. Purpose of this report is to develop irrigation management plan that meets standards acceptable by the CPCB.

On the request of management of Al-Dua Food Processing Pvt. Ltd. situated in Aligarh . A visit of the unit was undertaken by the team of CSAU, Kanpur on 28th October for investigations, inspection and collection of data. Also for the assessment of utilization of treated waste water, for creating and inspecting an efficient irrigation plan .

Observations of the slaughterhouse waste water treatment plant working verification and other conditions, particularly with respect to waste water treatment plant, water uses and quantity of waste water discharge. Thus our observation based on data information provided by slaughterhouse. The figures of water discharge and usage have been estimated subject to correctness/authenticity of the data submitted by slaughterhouse. So the precise comments can only be confirmed by the slaughterhouse.

(Annexure-1)

Composition of Team:

1	Dr. Y. K. Singh	Assistant Professor, Department of Agronomy
2	Dr. Manoj Mishra	Assistant Director, Directorate of Research

Slaughter House Officials Present During the Visit

1	Mr. Amit Kumar Pandey	General Manager
2	Mr. Imran Saeed	ETP In-charge
3	Mr. Osama Noman	Environmental Engineer
4	Mr. Shashikant Singh	General Manager & Agronomist

Observations & Discussion:

Observations of the slaughterhouse waste water treatment plant working verification and other conditions, particularly with respect to waste water treatment plant, water uses and quantity of waste water discharge. Thus our observation based on data information provided by slaughterhouse. The figures of water discharge and usage have been estimated subject to correctness/authenticity of the data submitted by slaughterhouse. So the precise comments can only be confirmed by the slaughterhouse during the period.

After the visit observations, calculations and generation of reports are carried out on the basis of inputs provided by the slaughterhouse. The adequacy of the irrigation management plan is also based on the data provided by the slaughterhouse with respect to area available, plantation/cropping pattern and record of the land, etc.

Overview of slaughterhouse:

Al-Dua Food Processing Pvt. Ltd. is working with the present slaughtering licensing capacity of 2000 Buffaloes and 3000 Sheep/Goat/day.

Incorporated in 2005, Al-Dua Food Processing Pvt. Ltd. processes and exports Frozen buffalo meat and chilled sheep/goat meat. The company is owned and managed by Haji Mohd. Zaheer, who have extensive experience in the meat-processing business. Its integrated meat processing plant cum slaughterhouse, is located at Aligarh, Uttar Pradesh. The facility has a processing capacity of 380 Metric Tonnes Buffalo Meat and Edible Offals per day (MTPD) and 36 Metric Tonnes Sheep/Goat Meat per day (MTPD), a freezing plant to store the raw and finished meat and a rendering plant to process offal's (the entrails and internal organs). The plant is approved by the Agriculture and Processed Food Export Development Authority (APEDA) vide plant registration no. APEDA/140. The general slaughtering process is as follows-

1	Receiving of Animal
2	Ante Mortem Inspection
3	Lairage
4	Halal Slaughtering and Bleeding
5	Dressing
6	Evisceration
7	Carcass splitting
8	Carcass Inspection
9	Carcass Wash
10	Chilling
11	Deboning
12	Fresh Packing
13	Freezing
14	Cold Storing
15	Dispatch

The waste water treatment plant in slaughterhouse was established and commissioned in the year 2012 with a total capital investment till date of Rs 12 crore. It has a capacity of 2000 m³/day.

Slaughterhouse Performance in the year 2018-19:

S. No.	Particulars	2018-19
1.	Duration of slaughtering	300 days
2.	Waste Water generation/day	564 m ³ /day
3.	Waste water generation in a year	169273

No. of average slaughtering days in 2018-19 = 300 days

The ETP is capable enough to treat the effluent by achieving desired norms of UPPCB/CPCB. The treated effluent drains out through pump and pipeline for using it as irrigation water by slaughterhouse.

(Annexure-2)

Waste Water Generation

Effluent generation observation is on the basis of information produced by the slaughterhouse (Annexure-3). However treated effluent generation is about 564 m³/day, while no. of average slaughtering days in 2018-19 is 300 days. The total waste water generation on the basis of 300 days in a typical year = $564 \text{ m}^3 \times 300 \text{ days} = 169200 \text{ m}^3$. The waste water treatment plant has also been designed to cater the peak generation of waste water 1200 m³/day (as per UPPCB Water Consent).

- Total treated effluent generation = 564 m³/day.
- Treated effluent used in recycling and internal uses = 120 m³/day.
- Net treated waste water left for irrigation = 444 m³/day.
- Total treated effluent generated left for irrigation during the year $444 \text{ m}^3 \times 300 \text{ days} = 133200 \text{ m}^3/\text{year}$.

(Annexure-3)

Effluent Treatment Plant detail:

Effluent is an out flowing of water or gas from a natural body of water, all from a human made structures. The meat industry uses large quantities of water. In this process effluents in slaughterhouse originate from lairage, slaughter and bleeding, dressing, paunch handling, rendering and processing and cleaning. Efficient disposal of effluent is important because of the possible pollution of water for the purpose of treatment of effluent. Slaughterhouse has an ETP which treats effluent in 3 different stages – Primary, Secondary and Tertiary.

Primary treatment includes Mechanical Screen, holding tanks, Rotary drum Screen, chemical dosing tanks, DAF, equalization tanks and a primary settling tank. Secondary treatment includes 2 stage activated sludge based biological treatment and settling tank. Tertiary treatment includes sand filter and activated carbon filter. Treated effluent is used for irrigation purposes in

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CPCB, Guj

Karnal Technology, and cropping purpose in slaughterhouse premises, washing boiler cooling towers. Sludge is dewatered by German make Volute Sludge Dewatering Screw Press which is further reused as organic manure.

— For achieving the objectives:-

- Eliminate threat of diseases.
- Convert the effluent into a readily re-usable resource.
- Conservation of water and nutrients.
- Produces a product that can be safely discharged into agricultural land.

The details of ETP of Al Dua Foods are as follows:

1. Screen Chamber- 2.3m x 1.0m x 2.0m
2. Holding Tank- 12.0m x 12.0m x 4.0m
3. Equalization Tank- 12.0m x 12.0m x 4.0m
4. Rotary Drum Screen- 200 m³/hour
5. Primary Clarifier- diameter 14.0m
6. DAF Feed Tank- 10.0 x 10.0 x 4.5
7. German make Volute Sludge Dewatering Screw Press
8. DAF Outlet Tank- 10.0 x 10.0 x 4.5
9. Alum Dosing Tank – diameter 2.0 m
10. Poly Dosing tank – diameter 2.0 m
11. DAF – 200 m³/hr
12. Secondary Clarifier 1– diameter 10.0m
13. Aeration Tank 1st – 36.0m x 17m x 4.50m
14. Secondary Clarifier 2- diameter 13.0m
15. Aeration Tank 2nd – volume 2625m³-
16. MGF and ACF – 200 m³/hour
17. Treated Water Tank- diameter 3.0m
18. Sludge Holding Tank- 7.5m x 6.5m x 2.50m

(Annexure-4)

Characteristics of treated effluent:

The characteristics of treated effluent at the outlet of ETP are as follows:-

S. No.	Particulars	Test results
1.	pH	7.28
2.	Color	
3.	TSS	18
4.	TDS	240
5.	COD	118
6.	BOD	20
7.	Temperature	
8.	Oil and grease	1.0

The above values of treated effluent have been derived from the analysis report of the laboratory AGSS Analytical and Research Lab provided by Al-Dua Food Processing Pvt. Ltd.

(Annexure-5)

CPCB Guidelines:

As per Ministry of Environment, Forest & climate change recommendation, for the application of treated effluent the requirement varies from soil to soil and crop to crop. The average effluent requirement varies from 170-225 M³ per hectare per day for irrigation of sandy loam soils.

Soil Structure	Effluent loading rate (m ³ /ha/day)
Sandy loam	170-225

Existing arrangement for treatment of effluent generated

During the typical year (2018-19) the slaughterhouse generated effluent about 564 M³/day. The slaughterhouse has full fledged effluent treatment plant to treat the generated effluent as per norms of CPCB as per data provided by slaughterhouse.

The slaughterhouse has installed primary and secondary effluent treatment on the basis of quantity of discharge of effluent allowed in water consent of UPPCB and average effluent generated in 2018-19 was 564 m³/day.

The primary effluent treatment system has physical and chemical treatment. The secondary system is based on activated sludge system and acts as a biological treatment for effluent. The third phase is the filtering phase. The slaughterhouse consists of multi grade filter and activated carbon filters respectively. As per ETP adequacy report the capacity of the ETP plant is considered as adequate to handle the generated effluent from the plant at operational capacity of slaughtering of 2000 Buffaloes and 3000 Sheep/Goat/day.

Area used under plantation & irrigation:

A detailed survey of the area is carried out to find the plantation pattern. It has been observed that the area of the slaughterhouse used for irrigation is divided into two parts i.e. 6.4 ha under karnal plantation technology and 6.0 ha. under plantation and cropping. As per soil testing report, the soil of the slaughterhouse (used for irrigation) is Sandy Loam.

(Annexure-6)

Quantity of treated effluent available for land application (m³/day)

- ❖ Average effluent generation/day = 564 m³
- ❖ Quantity of treated effluent (used internally and for recycling purposes) = 120 m³/day
- ❖ Net treated effluent generation left for irrigation = 444 m³/day
- ❖ Total treated effluent generated during the year available for irrigation is = 444 X 300 = 133200 m³.

Command area identified:

The slaughterhouse owns the land area of irrigation. The details are as follows:-

S.No	Location	Total available land in hectares	Distance from unit (m)	Mode of effluent transport
1	Area under karnal technology plantation	6.4	550 meter	PVC PIPE
2	Area under plantation and cropping	6.0	120 meter	PVC PIPE
Total		12.4		

Physico-chemical properties of soil:

S.No.	Particular	Testing results
1.	pH	7.39
2.	EC	130.3
3.	Bulk Density	17.5
4.	Porosity%	
5.	Sand	72
6.	Silt	20
7.	Clay	8
8.	K	315
9.	P2O5	42.5
10.	Organic carbon	0.16%
11.	Soil Type	Sandy Loam

As per soil testing report provided by Aligarh Muslim University (AMU) soils of Al-Dua Food Processing Pvt. Ltd. are "Sandy Loam" which is used for irrigation purposes.

(Annexure-7)

Particulars of Water Consumption-**A. Water required for area under karnal plantation technology**

Water required for irrigation with 300 Days @ 225 m³/day/ha at an interval of 5 Days.

Treated waste water used 225 m³ x 6.4 ha. x 60 cycles = 86400 m³

B. Water required for area under plantation and cropping

Water required for irrigation with 300 Days @ 225 m³/day/ha at an interval of 8 Days.

Treated waste water used 225 m³ X 6.0 ha. X 38 cycles = 51300 m³

The total treated waste water used = 86400+51300= 137700 m³

Waste water utilization detail

Location	Treated waste water as per CPCB protocol & crop requirement	Area in ha	Effluent used (M ³)
Area under Karnal Technology	225 X 60 cycles = 13500	6.4	86400
Area under plantation & cropping	225 X 38 cycles = 8550	6.0	51300
Total		12.4	137700

The total 12.4 acres of land availability has been identified. Hence, the quantity of effluent to be used in identified command area shall be 86400 m³/year for karnal plantation and 51300 m³/year under plantation & cropping. The total utilization of treated effluent will be 137700

m³/year which is higher as compared to effluent generated 133200 m³/year by the slaughter house.

So the waste water consumption capacity is more than waste water generation as per CPCB/UPPCB norms.

(Annexure-8)

The Karnal technology & its performance:

In this method of plantation, trees are grown on ridges and treated effluent is disposed off in furrows. The amount of the effluents to be disposed off depends on the age, type of plants, climatic conditions, soil texture and quality of effluent. It is possible to dispose off treated effluent through this technique.

This technique utilizes the entire biomass as living filter for supplying nutrients to the soil and plant. Irrigation renovates the effluent for atmospheric recharge and ground storage. Further as forest plants are used for fuel, wood, timber or pulp there is no chance of pathogens, heavy metals and organic compounds to enter into the human food chain system.

Though most of the plants are suitable for utilizing the effluents, yet those tree species which are fast growing can transpire high amounts of water and are able to withstand high moisture content. The root environments of these plants are most suitable for such purposes. Eucalyptus has the capacity to transpire large amounts of treated effluent and remains active throughout the year.

Eucalyptus tree leaves and leaf oils have medicinal properties and saps can be used as adhesive resins. Bark wood has been used for making vessels, tools and weapons such as spears and clubs. The eucalyptus tree's root spread horizontally near the surface of the soil & eucalyptus species have been used for draining water logged areas. Laboratory studies showed that eucalyptus oil contains substances that kill bacteria. It also may kill some viruses and fungi.

Eucalyptus oil also acts as an expectorant.

This system generates gross returns from the sale of fuel wood. The sludge accumulating in the furrows along with the decaying forest litter can be exploited as an additional source of revenue. This technology does not require highly skilled personnel and restoring environment to generate biomass for improving organic carbon, better production, productivity and fertility of soil. Al-Dua Food Processing Pvt. Ltd. adopted the karnal technology in 6.4 ha of its land and planted eucalyptus in this area, which gives fuel wood, as well as for financial gain.

Plantation done by Al-Dua Food Processing Pvt. Ltd. is not only economically beneficial but also helps in maintaining healthy environment for plants as well as human beings. Under karnal technology the remains of sludge in trenches is mixed with animal excreta and defoliated leaves which improves organic carbon in the soil after decomposition. It not only improves soil health but also the micro climatic conditions.

Therefore it is primarily seen that the performance of karnal technology is feasible for treated effluent consumption, financial gain by selling wood products, improving soil health and micro climatic conditions.

(Annexure-9)

Work force deployed for irrigation management plan

Al-Dua Food Processing Pvt. Ltd. has deployed manpower in the handling of Irrigation Management plan :

Over Supervision	Mr. Shashikant Singh	General Manager cum Agronomist
Supervisor	Mr. Osama Noman	M.Tech (Environmental Engineering)
Skilled labor name	Mr Rashid	Gardener
	Mr Vijay	Gardener

(Annexure-10)

Waste water application scheme:

For transmission of treated waste water AI-Dua Food Processing Pvt. Ltd. has 550 meter pipeline with 10 outlets along with kachha irrigation channels.

(Annexure-11)

Conclusion

- ✓ Proposed treated effluent irrigation management plan of AI-Dua Food Processing Pvt. Ltd. is based on data provided by slaughterhouse.
- ✓ The irrigation management plan is to be carried out for karnal plantation technology and under plantation and cropping.
- ✓ As per undertaking provided by the AI Dua Food Processing Pvt. Ltd. the generated treated effluent shall be utilized for irrigation purposes only. (Annexure -12)
- ✓ Karnal plantation technology helps in improving physical, chemical and biological properties of the soil.
- ✓ Fuel wood and plantation are also a source of financial gain to the slaughterhouse.
- ✓ This report is made on the basis of data provided by slaughter house. It should not be used as a legal document.

Suggestions

- 1) This irrigation management plan is only feasible and applicable until the time AI-Dua Food Processing Pvt. Ltd is adopting karnal technology.
- 2) Technical expertise is required for carrying out the karnal technology.
- 3) Irrigation management plan should be revised at least in every 3 years by an expert institute.
- 4) Lagoon should be as per norms of CPCB.


Y. K. Singh
 Assistant Professor,
 Department of Agronomy


Manoj Mishra
 Assistant Director,
 Directorate of Research

U.P. Pollution Control Board

CONSENT ORDER

Ref No. -

66641/UPPCB/Aligarh(UPPCBRO)/CTO/water/A
LIGARH/2019

Dated : 02/01/2020

To ,

Shri MOHD ZAHEER
M/s AL DUA FOOD PROCESSING PVT LTD
VILLAGE- AMARPUR KONDLA,TEHSEEL COLE, MATHURA BYE-PASS ROAD,
ALIGARH,ALIGARH,202001
ALIGARH

Sub : Consent under Section 25/26 of The Water (Prevention and control of Pollution) Act, 1974
(as amended) for discharge of effluent to M/s. AL DUA FOOD PROCESSING PVT LTD

Reference Application No :6004239

Dated :02/01/2020

1. For disposal of effluent into water body or drain or land under The Water (Prevention and control of Pollution) Act,1974 as amended (here in after referred as the act) M/s. AL DUA FOOD PROCESSING PVT LTD is hereby authorized by the board for discharge of their industrial effluent generated through ETP for irrigation/river through drain and disposal of domestic effluent through septic tant/soak pit subject to general and special conditions mentioned in the annexure ,in refrence to their foresaid application .
2. This consent is valid for the period from 01/01/2020 to 31/12/2024 .
3. In spite of the conditions and provisions mentioned in this consent order UP Pollution Control Board reserves its right and powers to reconsider/amend any or all conditions under section 27(2) of the Water (Previntion and Controt of Pollution) Act, 1974 as amended .

This consent is being issued with the permission of competent authority .

For and on behalf of U.P. Pollution Control Board
Ram Kumar
Singh
Chief Environment Officer,
Circle-4

Digitally signed by Ram Kumar
Singh
Date: 2020.01.02 15:25:33
+05'30'

Enclosed : As above
(condition of consent):

Copy to: Regional Officer, U.P. Pollution Control Board, Aligarh.

Ram Kumar
Singh
Chief Environment Officer,
Circle-4

Digitally signed by Ram
Kumar Singh
Date: 2020.01.02
15:26:11 +05'30'

Annexure to Consent issued to M/s.AL DUA FOOD PROCESSING PVT LTD vide

Consent Order No. 6004239/ Water

Dated : 02/01/2020

CONDITIONS OF CONSENT

1. This consent is valid for the approved maximum slaughtering capacity Frozen Meat- 350 MT/Day by Slaughtering of Buffaloes- 2000 Numbers/Day and Sheep/Goat- 3000 Numbers per day.
2. This consent is valid only for products and quantity mentioned above. Industry shall obtain prior approval before making any modification in product/ process /fuel/ plant machinery failing which consent would be deemed void.
3. The unit should follow the various provisions of "REVISED COMPREHENSIVE INDUSTRY DOCUMENT ON SLAUGHTER HOUSES" issued by Central pollution Control Board in October 2017.
4. The slaughter house will follow the various provisions of rules and regulations as mentioned in the "Compendium of Indian Standards on Slaughter House".
5. The slaughtering of the cow & its progeny is not permitted under any circumstances.
6. The industry should strictly follow the various Acts & guidelines mentioned in the compendium compiled in compliance of the Hon'ble Supreme Court order dated 17-02-2017 in the matter of W.P.(Civil) No. 330/2001, Common Cause V/s Govt. of India, W.P. No. 44/2004, contempt petition 124/2015 annexed with W.P. (Civil) No. 309/2003 Laxmi Narayan Modi V/s Govt. of India and ors.
7. The industry should provide the linkage of the CCTV cameras installed at the entry points, lairage and meat processing unit to the DM office and on the public portal. It will be the responsibility of the industry to comply with the various conditions of the permission taken from local administration or any other government department.
8. The quantity of maximum daily effluent discharge should not be more than the following :

Effluent Discharge Details			
S.No	Kind of Effluent	Maximum daily discharge, KL/day	Treatment facility and discharge point
1	Domestic	Septic Tank & Soak Pit	Septic Tank
2	Industrial	Karnal Technology	ETP

9. Arrangement should be made for collection of water used in process and domestic effluent separately in closed water supply system. The treated domestic and industrial effluent if discharged outside the premises, if meets at the end of final discharge point, arrangement should be made for measurement of effluent and for collecting its sample. Except the effluent informed in the application for consent no other effluent should enter in the said arrangements for collection of effluent. It should also be ensured that domestic effluent should not be discharged in storm water drain.
- 9(a) The domestic effluent should be treated in treatment plant so that the should be in conformity with the following norms dated treated effluent .

Domestic Effluent		
S.No	Parameter	Standard
1	Quantity of Discharge	12.0 KLD

- 9(b) The industrial effluent should be treated in treatment plant so that the treated effluent should be in conformity with the following norms. .

Industrial Effluent		
S.No	Parameter	Standard
1	Quantity of Discharge	1200.0 KLD
2	Total Suspended Solids	50 mg/L
3	BOD	30 mg/L
4	COD	250 mg/L
5	Oil & Grease	10 mg/L

10. Effluent generated in all the processes, bleed water, cooling effluent and the effluent generated from washing of floor and equipments etc should be treated before its disposal with treated industrial effluent so that it should be according to the norms prescribed under The Environment (Protection) Rules, 1986 or otherwise mandatory.
11. The method for collecting industrial and domestic effluent and its analysis should be as per legal Indian standards and its subsequent amendments/ standards prescribed under the Environment (Protection) Act, 1986.
12. The industry will have to ensure compliance of the permission from the CGWA before ground water extraction and it will be the responsibility of the industry to comply with the various conditions of the permission taken.
13. The industry shall submit Environmental Statement in prescribed form V rule no.14 of E.P Rules 1986.
14. The industry shall comply with various provisions of Air (Prevention and Control of Pollution) Act 1981 as amended, Water (Prevention and Control of Pollution) Act 1974 as amended and all other applicable rules notified under E.P. Act 1986.
15. Minimum 33% of the land on which unit is established will be covered and properly maintained by the plantation of tall trees of suitable species as per the guidelines set up by the Board vide its Office Order no.H-16405/220/2018/02 dt. 16/02/2018. The copy of this guideline is available at URL http://www.uppcb.com/pdf/Green-Belt-Guidle_160218.pdf.
16. The industry will ensure the continuous and uninterrupted data supply from the OCEEMS to the CPCB and SPCB.
17. Flow meter to be installed in all water abstraction points and usage of fresh water to be minimized. The unit will ensure facility to transmit data to CPCB server and submit a regular calibration certificate of Electro Magnetic Flow meter to the Board.
18. If closure order is issued by CPCB or UPPCB against the unit, then CTO issued earlier will remain suspended during the closure period and after ensuring the compliance and after revocation of closure order, the CTO will automatically be effective with additional conditions mentioned in the closure revocation order.
19. Industry shall abide by the directions given by Hon'ble Court, Central Pollution Control Board and UPPCB for protection and safe guard of environment from time to time.

Specific Conditions:

1. The unit is permitted for the maximum Slaughtering of Buffaloes- 2000 Numbers/Days and Sheep/Goat- 3000 Numbers/day for the production of Frozen Meat- 350 MT/Day and related by product i.e. tallow- 60 MT/Day.
2. The unit shall maintain strict supervision upon fluctuations in operating parameters w.r.t. each treatment unit of the E.T.P.
3. Industry shall ensure proper operation and maintenance of existing ETP to achieve the applicable norms. for different parameters.
4. Industry shall install standards flow meter for measurement of discharged effluent for irrigation purpose.
5. Industry shall implement the provision of salt recovery for the reduction of TDS as per the guideline of the CPCB.
6. Industry shall not use any storm water drain for the conveyance of industrial waste, rather storm water drain and industrial drain shall be kept separate.
7. Industry shall submit the renewed NOC of CGWA within 06 Months with the compliance report of conditions imposed by the CGWA.
8. The industry will ensure the continuous and uninterrupted data supply from OCEEMS to the SPCB and CPCB server and the calibration certificate of OCEEMS installed shall be submitted to state board at a interval of 03 Month.
9. Industry will install CP PTZ Rotational Cameras on aeration tank, inlet and outlet points of ETP. The different unit of ETP shall be maintained and operated with required parameter such as MLSS in aeration 1 and aeration 2.
10. Unit shall submit the data and the technical detail for the reuse of treated effluent, if any in the industrial activity within 03 month.
11. Unit shall find out scope to develop its breeding and cattle rearing center for the production of live stocks.
12. The industry shall establish lined holding tank for 15 days of treated effluent to hold the effluent during heavy rain fall within 03 Month.
13. The solid waste generated from the industry shall be disposed off through proper scientific system, so as it could not affect the surrounding environment as well as ground water quality.
14. The ETP installed in the factory shall be maintained and operated in such a manner that treated effluent always confirms to the standard laid down by the Board.
15. Industry shall develop a equipped laboratory with competent staff of environment to monitor the air, water and ground water quality in surrounding area with monitoring of air and water pollution control system within 06 Month.
16. The unit shall also explore treated effluent Re-cycle. This step shall in turn reduce hydraulic loading of effluent discharge as well as shall eliminate extraneous treated effluent discharge possibility elsewhere.
17. Industry shall submit time bound proposal of STP within 03 Month with timeline of erection.
18. Industry shall develop a-lined lagoon of 15 days holding for non confirming effluent.
19. Industry shall follow the charter of slaughter house issued by CPCB.
20. Industry shall strictly comply the 24 Point compendium issued by the Urban Development Department, Govt. of U.P.
21. Industry shall comply with various provisions E.P. Act 1986.
22. The unit shall submit the audited balance sheet for the current year and the details of fees deposited during last three years within a month.
23. Industry shall comply the provision of PWM Rule, 2016.
24. Industry shall comply the provision of SWM Rule, 2016.
25. Industry shall comply the provision of HW Rule, 2016.
26. Industry shall submit the adequacy report of the existing ETP for the install capacity by CLRI, Chennai within 03 Month.
27. The unit shall obtain prior consents in the event of any addition or alteration of existing effluent treatment or discharge mode or any addition or alteration of new emission generation sources such as - Boiler/Furnace/Heaters/D.G. sets in accordance with section 25/26 of Water Act 1974 & section 21/22 of Air Act 1981 (as amended respectively).
28. Without prior consent industry shall not add, alter and diversify existing system of plant and machinery in the industry.
29. Industry shall only operate dry rendering plant.
30. It will be mandatory to comply the order/direction/instruction issued by Hon'ble Supreme Court/NGT/CPCB/SPCB by the unit.
31. This order shall remain suspended if closure order passed by CPCB/SPCB for the operation of slaughter house till closure order is revoked by the competent authority.
32. Unit shall strengthen the existing green belt upto the required level of the acquired land as per NOC of UPPCB.

Industry shall properly ensure the parking of live stock carrier, so that no congestion takes place in the movement of general public.

33. Industry shall ensure proper arrangement for management of accident and sudden fire with the collaboration of local administration of Aligarh.

34. Industry is directed to comply the order passed by Hon'ble NGT, New Delhi dated 26.09.2019 in OA No- 348/2017 strictly.

Issued with the permission of competent authority .

For and on behalf of U.P. Pollution Control Board .
Ram Kumar
Singh
Chief Environment Officer,
Circle-4

Digitally signed by Ram Kumar
Singh
Date: 2020.01.02 15:27:07
+05'30'

U.P. Pollution Control Board

CONSENT ORDER

Dated : 02/01/2020

Ref No. -
66333/UPPCB/Aligarh(UPPCBRO)/CTO/air/ALIGARH/2019

To ,
Shri MOHD ZAHEER
M/s AL DUA FOOD PROCESSING PVT LTD
VILLAGE- AMARPUR KONDLA, TEHSEEL COLE, MATHURA BYE-PASS ROAD,
ALIGARH, ALIGARH, 202001
ALIGARH

Sub : Consent under section 21/22 of the Air (Prevention and control of Pollution) Act, 1981 (as amended)
to M/s. AL DUA FOOD PROCESSING PVT LTD

Reference Application No. 5984221

Dated : 02/01/2020

1. With reference to the application for consent for emission of air pollutants from the plant of M/s AL DUA FOOD PROCESSING PVT LTD. under Air Act 1981. It is being authorised for said emissions, as per the standards, in environment, by the Board as per enclosed conditions .
2. This consent is valid for the period from 01/01/2020 to 31/12/2024 .
3. In spite of the conditions and provisions mentioned in this consent order UP Pollution Control Board reserves its right and powers to reconsider/amend any or all conditions under section 21 (6) of the Air (Prevention and Control of Pollution) Act, 1981 as amended.
This consent is being issued with the permission of competent authority .

For and on behalf of U.P. Pollution Control Board
Ram Kumar
Singh
Chief Environment Officer,
Circle-4

Digitally signed by Ram Kumar
Singh
Date: 2020.01.02 13:36:25
+05'30'

Enclosed : As above
(condition of consent):

Copy to: Regional Officer, U.P. Pollution Control Board, Aligarh.

Ram Kumar
Singh
Chief Environment Officer,
Circle-4

Digitally signed by Ram
Kumar Singh
Date: 2020.01.02 13:49:17
+05'30'

U.P. Pollution Control Board

Dated : 02/01/2020

CONDITIONS OF CONSENT

1. This consent is valid for the approved maximum slaughtering capacity Frozen Meat- 350 MT/Day by Slaughtering of Buffaloes- 2000 Numbers/Day and Sheep/Goat- 2000 Numbers Buffalos per day.
2. This consent is valid only for products and quantity mentioned above. Industry shall obtain prior approval before making any modification in product/ process /fuel/ plant machinery failing which consent would be deemed void.
3. The unit should follow the various provisions of "REVISED COMPREHENSIVE INDUSTRY DOCUMENT ON SLAUGHTER HOUSES" issued by Central pollution Control Board in October 2017.
4. The slaughtering of the cow & its progeny is not permitted under any circumstances.
5. The slaughter house will follow the various provisions of rules and regulations as mentioned in the "Compendium of Indian Standards on Slaughter House".
- 6(a) The maximum rate of emission of flue gas should not be more than the emission norms for the stacks.
- 6(b) Air Pollution Source Details.

Air Pollution Source Details					
S.No	Air Pollution Source	Type of Fuel	Stack No.	Parameters	Height
1	Boiler- 6.0 TPHx2	Rice Husk/Wood/Dunk	1	Particulate Matter	As per norms.
2	D.G. Set- 500.0 KVA	Diesel	2	Sulphur Dioxide	As per norms.
3	D.G. Set- 1010.0 KVAx4	Diesel	3	Sulphur Dioxide	As per norms.

- 6(c) The emissions by various stacks into the environment should be as per the norms of the Board .

Emission Quality Details Detail			
S.No	Stack No	Parameter	Standard
1	1	Particulate Matter	As per norms.
2	2	Sulphur Dioxide	As per norms.
3	3	Sulphur Dioxide	As per norms.

7. The industry should be operated in such a manner that it does not adversely affect the environment and the solid waste generated such as ash etc. is disposed in eco friendly manner .
8. Any source of emission other than that mentioned in the Air consent seeking application will not be permitted by the Board .
9. The industry should ensure the operation of the air pollution control system (APCS) in such a manner that the air emission conforms with the standards prescribed under the E.P Act 1986 as amended.
10. The industry shall submit Environmental Statement in prescribed format as per rule no.14 as per E.P Rules 1986 .
11. The industry shall abide by orders / directions issued by Hon'ble Supreme court Hon'ble High Court, Hon'ble National Green tribunal, Central Pollution Control Board and U.P Pollution Control Board for protection and safe guard of environment from time to time .
12. Industry shall submit monthly monitoring reports of all stacks and ambient air quality from a certified / approved laboratory under E.P. Act 1986 .
13. The industry shall comply with various provisions of Air (Prevention and Control of Pollution) Act 1981 as amended, Water (Prevention and Control of Pollution) Act 1974 as amended and all other applicable rules notified under E.P. Act 1986.

14. The industry will ensure the continuous and uninterrupted data supply from the OCEEMS to the CPCB and SPCB .
15. The unit shall submit audited balance sheet for the current year and the details of fees deposited during last three years within a month failing which consent would be deemed void.
16. The use of Pet coke and Furnace oil as a fuel in the factory is restricted in compliance of the Hon'ble Supreme court order .
17. The Industry will use minimum 20% Bio Briquette as fuel in the Boiler depending upon its availability .
18. The industry shall obtain prior consents in the event of any addition of new emission generation sources such as- Boiler/ Furnace/ Heaters/ D.G. Sets or alteration of existing emission sources in accordance with section- 21/22 of air Act 1981 (as amended respectively).
19. Minimum 33% of the land on which industry is established will be covered and properly maintained by the plantation of tall trees of suitable species as per the guidelines set up by the Board vide its Office Order no.H-16405/220/2018/02 dt. 16/02/2018. The copy of this guideline is available at URL http://www. uppcb. com /pdf/Green-Belt-Guidle_160218.pdf .
20. If closure order is issued by CPCB or UPPCB against the unit, then CTO issued earlier will remain suspended during the closure period and after ensuring the compliance and after revocation of closure order, the CTO will automatically be effective with additional conditions mentioned in the closure revocation order .
21. Industry shall abide by the directions given by Hon'ble Court, Central Pollution Control Board and UPPCB for protection and safe guard of environment from time to time .

Specific Conditions:

1. Industry shall maintain and operate multi cyclone dust collector to comply the standard applicable for air pollution with all boilers.
2. Industry shall submit calibration certificate of OCEMS installed at stacks at every 03 month done by competent agency.
3. Industry shall submit the stack monitoring report of stack at every 06 Month done by approved laboratory.
4. Industry shall submit the detail of ash disposal system adopted within 01 Month ensuring safe disposal of ash, so that public nuisance could not take place.
5. Industry shall maintain and operate bio filters attached with rendering plant to control the odour.
6. Industry shall only operate dry rendering plant.
7. Industry shall maintain proper arrangement for suppression and control of air pollution generated due to sudden leakage of ammonia gas.
8. Industry shall maintain the ambient noise and air conditions in the premise.
9. This consent order shall automatically become invalid on issuance of Closure Order by CPCB/UPPCB and further on revoking of closure order, the consent order shall become valid.
10. Industry shall dispose ash in a safe manner as per SWM Rule, 2016.
11. Industry shall submit the compliance of 24 Point compendium at every 03 Month. Industry shall not disposed any solid waste along any road.
12. Industry shall strengthen the existing green belt in coming monsoon and report accordingly.
13. Industry shall comply the provision of PWM Rule, 2016 regarding Extended Producer Responsibility.
14. Industry shall make all possible provision to control the odour pollution.
15. Industry shall make pucca arrangement for fire fighting and sudden accident with the collaboration of local administration.

Issued with the permission of competent authority .

For and on behalf of U.P. Pollution Control Board .

Ram Kumar

Singh

Chief Environment Officer,

Circle-4

Digitally signed by Ram Kumar
Singh
Date: 2020.01.02 13:55:41
+05'30'



REGIONAL LABORATORY ALIGARH
UTTAR PRADESH POLLUTION CONTROL BOARD
J-1, Gyan Sarovar Colony, Ramghat Road, Aligarh

संलग्नक-3
134

TEST REPORT: WASTE WATER LABORATORY

Ref No: 21439183/Aligarh/2023

Date:09/06/2023

- 1- Name of Industry: AL DUA FOOD PROCESSING PVT LTD
- 2- Address of Industry: VILLAGE- AMARPUR KONDLA,TEHSEEL COLE, MATHURA BYE-PASS ROAD, ALIGARH,ALIGARH,202001
- 3- District: Aligarh
- 4- Description about sampling point: INLET OF ETP
- 5- Type of Sample (Grab/Composite/Integrated): Grab
- 6- Sample Collected By: MR Y.N. MISHRA, (CPCB), DR J P SINGH (R O) & AJAY KUMAR(AEE), UPENDRA PRASAD,(J.E.)
- 7- Colour and Odour: REDDISH UNPLESANT
- 8- Quantity and Packing: 1 LTR JERICAN
- 9- Date of Sample Collection: 31/05/2023
- 10- Analysis Indented by: RO Aligarh
- 11- Date of sample receipt in Lab: 31/05/2023

Parameter/Method Name	Unit	Results	Standard	Detection Range
pH,4500 H B Electronic method	-	7.6		02-12
Suspended Solids , 2540 D Total Suspended Solids dried at 103-105 0C	mg/l	1892		10-20000 mg/l
BOD, 3 day 27 0C IS 3025 (Part 44): 1993 Bio	mg/l	620		1.0 -50000 mg/l
COD, 5220 B Open Reflux Method	mg/l	1610		5.0 -100000 mg/l

Reference- (1)General Standards for discharge of environment Pollutants are as pert-A Effluent(Schedule-VI).The eniveronment (Protection) Rules,1986 source:
www.cpcb.nic.in/GeneralStandards.pdf. Besides these standards,refer EPA standards for specific purpose

Remark: NA

Analysed by-
[Dhiresk Kumar (JRF)]

Authorized by
JAI PAL
SINGH
Dr J P SINGH (RO)

Digitally signed by JAI
PAL SINGH
Date: 2023.06.09
13:50:53 +05'30'

JAI PAL
SINGH
Regional Officer

Digitally signed
by JAI PAL SINGH
Date: 2023.06.09
13:51:06 +05'30'



REGIONAL LABORATORY ALIGARH
UTTAR PRADESH POLLUTION CONTROL BOARD
J-1, Gyan Sarovar Colony, Ramghat Road, Aligarh

135

TEST REPORT: WASTE WATER LABORATORY

Ref No: 21439193/Aligarh/2023

Date:09/06/2023

- 1- Name of Industry: AL DUA FOOD PROCESSING PVT LTD
- 2- Address of Industry: VILLAGE- AMARPUR KONDLA,TEHSEEL COLE, MATHURA BYE-PASS ROAD, ALIGARH,ALIGARH,202001
- 3- District: Aligarh
- 4- Description about sampling point: FINAL OUTLET OF ETP
- 5- Type of Sample (Grab/Composite/Integrated): Grab
- 6- Sample Collected By: MR Y.N. MISHRA, (CPCB), DR J P SINGH (R O) & AJAY KUMAR(AEE), UPENDRA PRASAD,(J.E.)
- 7- Colour and Odour: COLOURLESS NO SPECIFIC
- 8- Quantity and Packing: 1 LTR JERICAN
- 9- Date of Sample Collection: 31/05/2023
- 10- Analysis Indented by: RO Aligarh
- 11- Date of sample receipt in Lab: 31/05/2023

Parameter/Method Name	Unit	Results	Standard	Detection Range
pH,4500 H B Electronic method	-	7.3	6.5-8.5	02-12
Suspended Solids , 2540 D Total Suspended Solids dried at 103-105 0C	mg/l	40	50	10-20000 mg/l
BOD, 3 day 27 0C IS 3025 (Part 44): 1993 Bio	mg/l	26	30	1.0 -50000 mg/l
COD, 5220 B Open Reflux Method	mg/l	242	250	5.0 -100000 mg/l

Reference- (1)General Standards for discharge of environment Pollutants are as per-A Effluent(Schedule-VI).The environment (Protection) Rules,1986 source: www.cpcb.nic.in/GeneralStandards.pdf. Besides these standards,refer EPA standards for specific purpose

Remark: NA

Analysed by-
[Dhiresk Kumar (JRF)]

Authorized by
JAI PAL
SINGH
Dr J P SINGH (RO)

JAI PAL
SINGH
Regional Officer



REGIONAL LABORATORY ALIGARH
UTTAR PRADESH POLLUTION CONTROL BOARD
J-1, Gyan Sarovar Colony, Ramghat Road, Aligarh

136

TEST REPORT: WASTE WATER LABORATORY

Date:09/06/2023

Ref No: 21439171/Aligarh/2023

- 1- Name of Industry: AL DUA FOOD PROCESSING PVT LTD
- 2- Address of Industry: VILLAGE- AMARPUR KONDLA, TEHSEEL COLE, MATHURA BYE-PASS ROAD, ALIGARH, ALIGARH, 202001
- 3- District: Aligarh
- 4- Description about sampling point: KARNAL TERCHNOLOGY
- 5- Type of Sample (Grab/Composite/Integrated): Grab
- 6- Sample Collected By: MR Y.N. MISHRA, (CPCB), DR J P SINGH (R O) RO & AJAY KUMAR(AEE), UPENDRA PRASAD,(J.E.) A E E, JE
- 7- Colour and Odour: COLOURLESS NO SPECIFIC
- 8- Quantity and Packing: 1 LTR JERICAN
- 9- Date of Sample Collection: 31/05/2023
- 10- Analysis Indented by: RO Aligarh
- 11- Date of sample receipt in Lab: 31/05/2023

Parameter/Method Name	Unit	Results	Standard	Detection Range
pH, 4500 H B Electronic method	-	7.4	6.5-8.5	02-12
Suspended Solids , 2540 D Total Suspended Solids dried at 103-105 0C	mg/l	48	50	10-20000 mg/l
BOD, 3 day 27 0C IS 3025 (Part 44): 1993 Bio	mg/l	28	30	1.0 -50000 mg/l
COD, 5220 B Open Reflux Method	mg/l	246	250	5.0 -100000 mg/l

Reference- (1)General Standards for discharge of environment Pollutants are as per-A Effluent(Schedule-VI).The environment (Protection) Rules,1986 source:
www.cpcb.nic.in/GeneralStandards.pdf. Besides these standards, refer EPA standards for specific purpose

Remark: NA

Analysed by-
[Dhiresk Kumar (JRF)]

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REGIONAL LABORATORY ALIGARH
UTTAR PRADESH POLLUTION CONTROL BOARD

137

J-1, Gyan Sarovar Colony, Ramghat Road, Aligarh

TEST REPORT: WASTE WATER LABORATORY

Ref No: 21439151/Aligarh/2023

Date: 12/06/2023

- 1- Name of Industry: AL DUA FOOD PROCESSING PVT LTD
- 2- Address of Industry: VILLAGE- AMARPUR KONDLA, TEHSEEL COLE, MATHURA BYE-PASS ROAD, ALIGARH, ALIGARH, 202001
- 3- District: Aligarh
- 4- Description about sampling point: AERATION TANK -1
- 5- Type of Sample (Grab/Composite/Integrated): Grab
- 6- Sample Collected By: MR Y.N. MISHRA, (CPCB), DR J P SINGH (R O) & AJAY KUMAR(AEE), UPENDRA PRASAD,(J.E.)
- 7- Colour and Odour: REDDISH UNPLESANT
- 8- Quantity and Packing: 1 LTR JERICAN
- 9- Date of Sample Collection: 31/05/2023
- 10- Analysis Indented by: RO Aligarh
- 11- Date of sample receipt in Lab: 31/05/2023

Parameter/Method Name	Unit	Results	Standard	Detection Range
MLSS, 2540D dried at 103-105°C as method prescribed by CPCB	mg/l	3860		10-20000

Reference- (1)General Standards for discharge of environment Pollutants are as per-A Effluent(Schedule-VI).The environment (Protection) Rules,1986 source: www.cpcb.nic.in/GeneralStandards.pdf. Besides these standards, refer EPA standards for specific purpose

Remark: NA

Analysed by-
[Dhiresk Kumar (JRF)]

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REPORT ON

**Environmental Audit and Performance
Assessment of Effluent Treatment Plant**

For

M/s Al-Dua Food Processing Private Limited

VIII- Amarpur Kondla, Tehseel-Kole

Mathura Bypass Road,

Aligarh, (U.P.) India

Pin Code: 202001



By

CSIR-Central Leather Research Institute

Adyar, Chennai 600 020

August 2019

**Document Details**

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Number and Date	CLRI.MPM.PRO.REC.007.19; Version 3; 09.09.2019
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Reviewed and Approved by	Dr P Saravanan, Chief Scientist and Head, PPBD, CSIR-CLRI
Submitted to	M/s Al-Dua Food Processing Pvt Ltd., Aligarh - 202001
Type of Document	Controlled

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Abbreviations

Details of Abbreviations	
ACF	Activated Carbon Filter
ASP	Activated Sludge Process
BOD	Biological Oxygen Demand
CLRI	Central Leather Research Institute
COD	Chemical Oxygen Demand
CPCB	Central Pollution Control Board
CSIR	Council of Scientific & Industrial Research
ETP	Effluent Treatment Plant
hr	Hour
KLD	Kilo Litre per Day
LD	Liquid Depth
m ³	Cubic meter
mg/L	Milligram per Litre
MGF	Multi Grade Filter
SS	Suspended Solids
TDS	Total Dissolved Solids
TSDF	Treatment, Storage and Disposal Facility
TSS	Total Suspended Solids

1. INTRODUCTION

1.1. Preamble

M/s Al-Dua Food Processing Pvt Ltd, is a slaughterhouse located in Amarpur Kondla village, Kole Tehsil, Uttar Pradesh, India. It was established in December 2005. The company has been carrying out *halal* slaughtering and is classified under the large slaughterhouse category based on the number as well as the live weight of animals slaughtered per day. The unit is consented to slaughter 2000 buffaloes and 3000 ovine animals (sheep/goat) per day. However, the unit currently (over the last two months) has been processing only 1000 to 1200 buffaloes per day. The production line for the slaughter of small animals is under renovation. Based on the type of process used, this company may be classified under semi-mechanized category since it employs both manual and mechanical means of processing. The company has employed a total of 438 workers in all divisions. The unit is a 100% EOU and the meat is exported to Vietnam, Malaysia and many middle-east countries under various trade names.

The unit has approached CSIR-Central Leather research Institute to carry out environmental audit and performance assessment of the wastewater treatment plant. CSIR-CLRI has entered into a contract with M/s Al- Dua Food Processing Pvt Ltd., Uttar Pradesh, India for providing consultancy services for undertaking environmental audit and assessing the performance of the wastewater treatment plant of the organization. CSIR-CLRI has carried out the audit and assessment and this report is the output of the activities carried out.

1.2. Objectives of the project

The objectives of this consultancy project are as follows.

- To make a field visit (by CSIR-CLRI team) to the company for the collection of complete information on solid and liquid wastes handling methods
- To suggest better methods for the management of solid and liquid wastes that could fetch better economic returns to the company and minimize environmental pollution.

1.3. Report structure

After this introduction, the report has the following sections:

Section 2: This section provides description of the overall process and then explains each step in detail. A detailed explanation on pre-slaughtering operations, slaughtering, meat processing, packing, storage & dispatch, boiler operations, dry rendering etc. is provided in this section.

Section 3: This section explains the quantity of main product (meat) and other by-products processed by the unit.

Section 4: The origin of wastewater in the slaughtering process, characteristics of raw effluent, wastewater treatment methods, characteristics of the treated effluent etc. are dealt in this section.

Section 5: This section quantifies various solid wastes generated and the management options adopted by the company

Section 6: This section deals with the general and specific recommendations offered to the company by CSIR-CLRI

Section 7: This section includes the concluding remarks of CSIR-CLRI

2. PROCESS DESCRIPTION

2.1. Overall Description of the Process

The process adopted by M/s Al-Dua food processing Pvt Ltd, may be easily understood from the process flow diagram shown in Fig. 2.1.

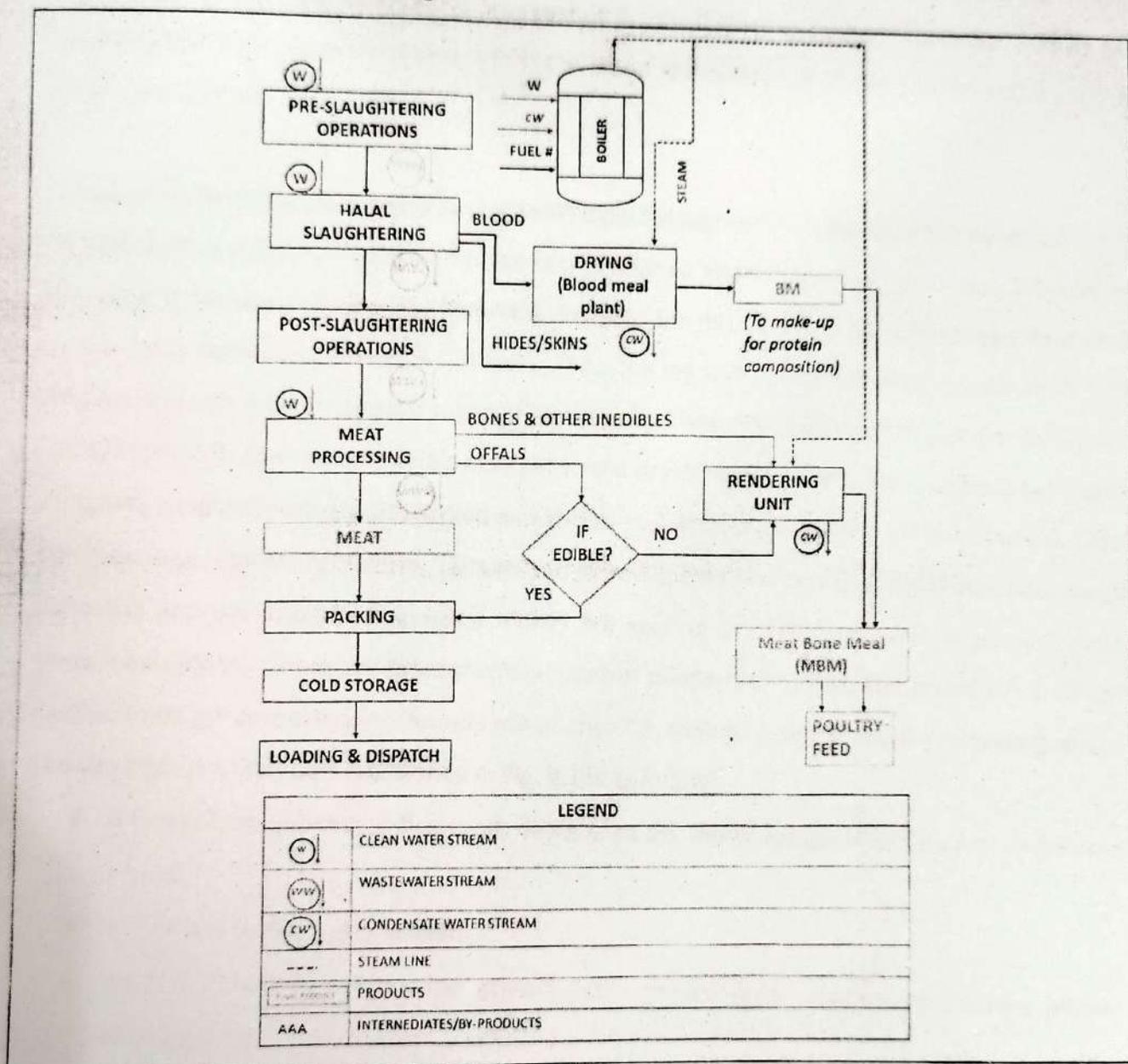


Fig. 2.1 Overall process flow diagram

After the animals are received in the company, each animal is thoroughly inspected by experienced veterinary officers. If any animal is found/received dead, they are immediately handed over to the External Business Operators (EBO) who are registered with Nagar Nigam, Aligarh and are meant for collection of dead animals. Fit & healthy animals pass through a series of steps called *pre-slaughtering operations* before they are slaughtered. Detailed description about pre-slaughtering operations is provided in the following section. Qualified animals are slaughtered by *halal* method after which the blood is drained out of the carcass and is used to make *blood meal*.

The carcass then follows a series of steps called post slaughtering operations the details of which is described in a separate section. The carcass is washed and the legs are cut. This is followed by flaying and de-hiding the carcass. The hide is sold to the local tanners on a daily basis. Next step is the decapitation and inspection of head. Then the sternum is cut followed by evisceration to remove the offals such as heart, lungs, liver, intestines etc. The edible offals are processed and sent for packing. The inedible offals are sent to the dry rendering plant. The carcass is then split, trimmed, weighed, washed, ID marked and chilled at 2-4°C for 24 hrs at a pH less than 6.0. Then the meat is separated from bones, packed and stored in cold storages and dispatched after metal detection and pre-dispatch inspection. Bones are sent to dry rendering unit to prepare meat bone meal (MBM). There are several critical control points (CCP) along the process flow. If the carcass/meat are suspected (or) found unfit at any CCP, then it is sent to the dry rendering unit.

The description of symbols mentioned in Fig. 2.1 is as follows.

- # Boiler fuel constitutes firewood, dewatered dry dung, rumen indigesta and dewatered sludge
- w – Refers to the water stream
- ww1 – Refers to wastewater stream from pre-slaughter operations (lairage, animal washing etc.)
- ww2 – Refers to wastewater stream from post-slaughter washing of the carcass, process area washing and paunch room

- ww3 & ww4 – Refers to wastewater stream arising due to carcass washing and process area washing
- cw – Refers to condensate water from blood meal plant and rendering unit back to boiler.

2.2. Pre-slaughtering operations

The process flow of the pre-slaughtering operations is shown in Fig. 2.2.

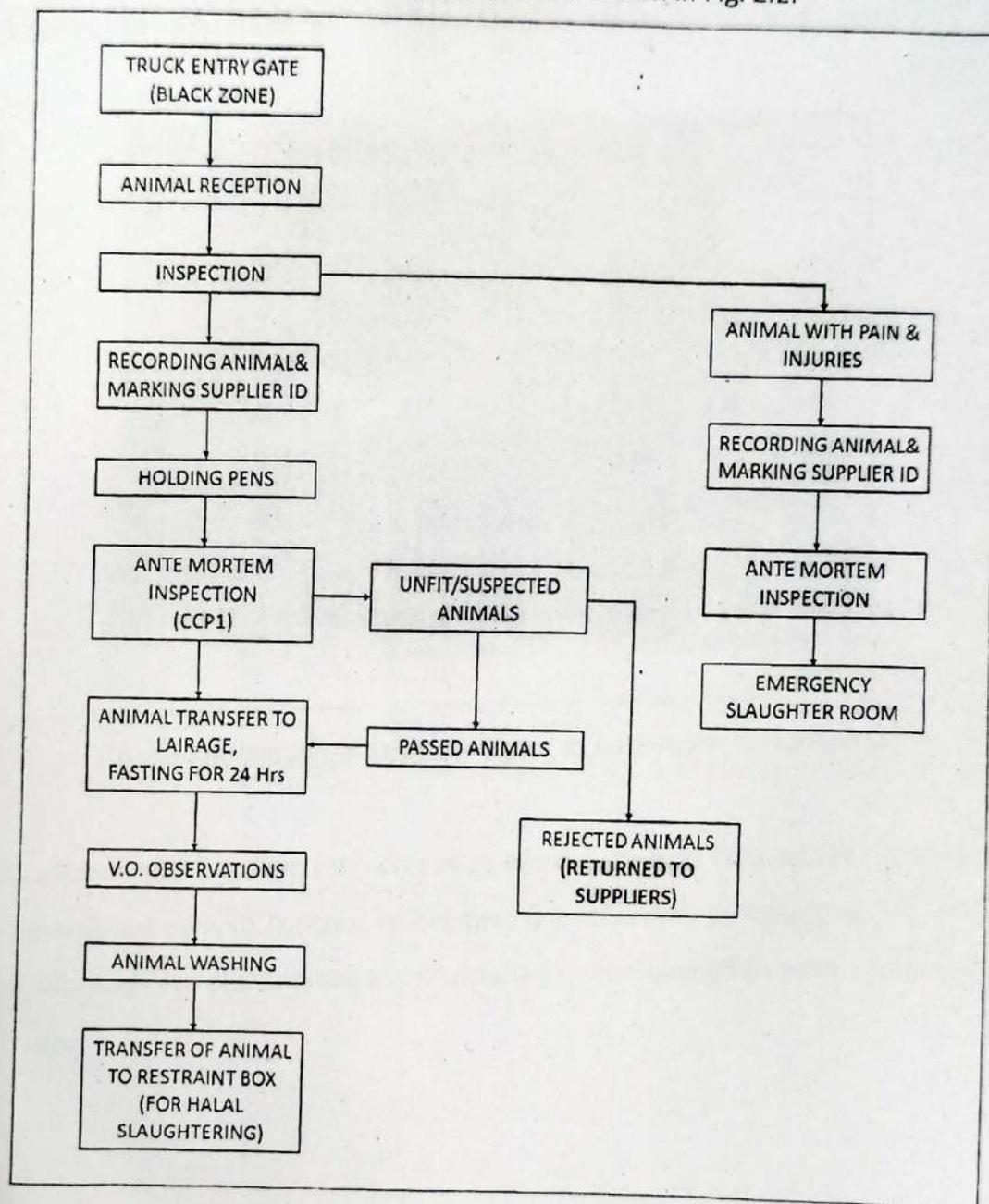


Fig. 2.2 Process flow diagram of pre-slaughtering operations

Pre-slaughtering operations starts right from the reception of animals via trucks at the truck entry gate (Black zone). Animals received are thoroughly inspected by experienced veterinary officers. Animals with injuries/pain are marked with supplier IDs and then inspected thoroughly (Ante Mortem). Then these animals are sent to emergency slaughter rooms for *halal* slaughtering process. Other qualified animals are marked with the supplier IDs and sent to holding pens where they are inspected through Ante-mortem process. This step forms the first critical control point (CCP1) in the process. Fig. 2.3 shows one such Ante-mortem inspection in progress.

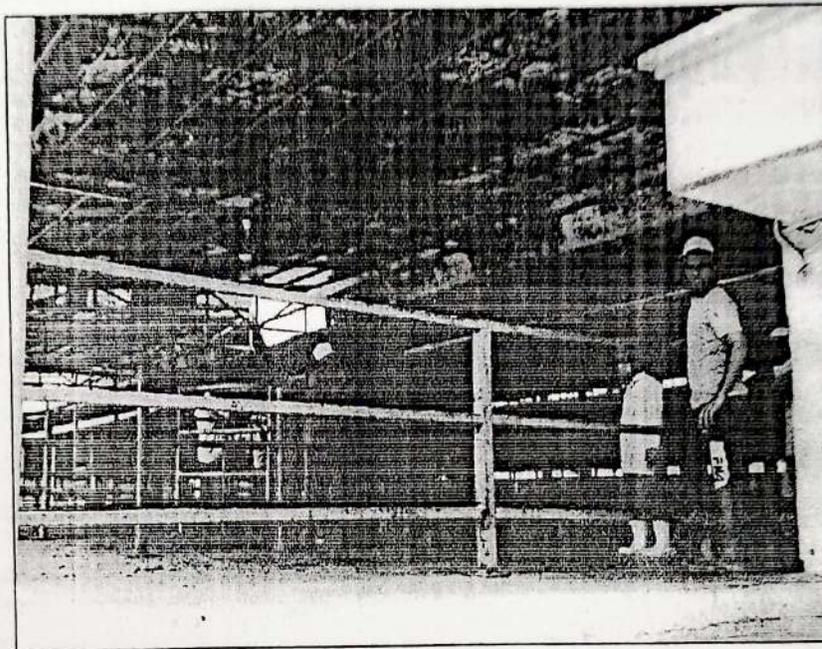


Fig. 2.3 Photograph of an animal taken to Ante-mortem inspection

The Unfit animals and the ones suspected with disease are sent back to the suppliers. Fit and healthy animals are sent to lairages, where they are subjected to fasting for 24 hrs. Animals qualifying this stage are then washed and transferred to restraining box where *halal* slaughtering is carried out.

2.3. Slaughtering

Halal method of slaughtering is the one in which the animal's throat is cut by a sharp knife severing the carotid artery, jugular vein and windpipe in a single swipe. M/s Al-Dua food processing Pvt Ltd. strictly adheres to the halal method of slaughtering animals. Carcass found unfit from halal point of view is sent to External Business Operators (EBO) who is registered with Nagar Nigam, Aligarh and is meant for collection of dead animals. After halal slaughtering, oesophagus ligation is done in order to prevent ruminal contents from coming out and contaminating the carcass. Then the carcass is hoisted on a rail to collect blood.

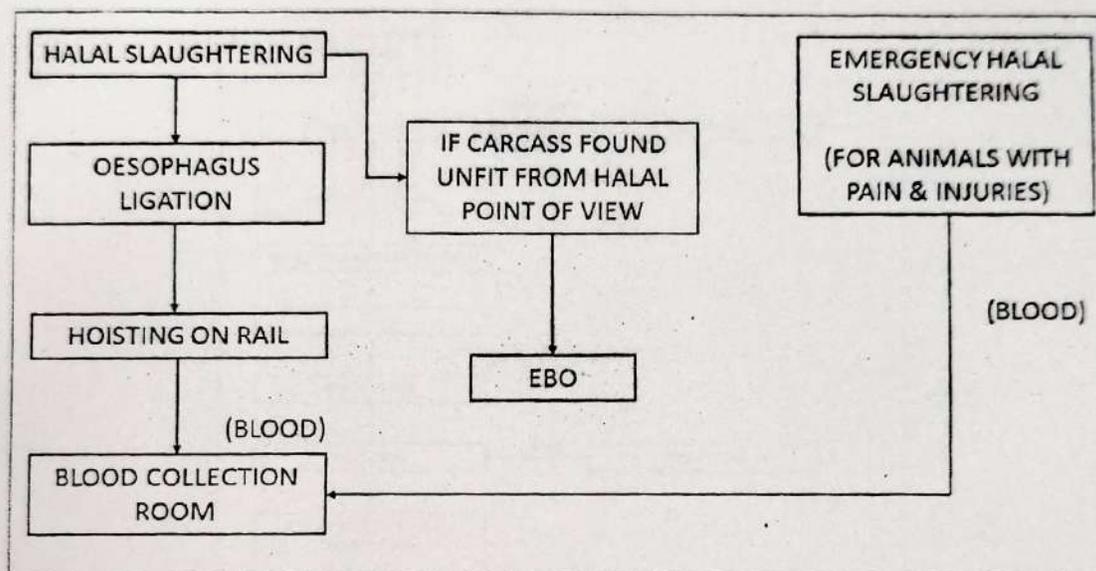


Fig. 2.4 Process flow diagram of slaughtering operations

Blood is drained out of the carcass and is sent to blood meal plant for making dry, inert powder called as *Blood meal*. This is rich in protein and can be mixed with meat bone meal (MBM) to prepare sterilized poultry feed supplement. The process explained above is presented in the form of a flow chart in Fig 2.4.

2.4. Post slaughtering operations

After the blood is completely drained out, the carcass is washed and the legs are cut. Then the carcass is hooked and flayed. This is followed by the procedure of *tying the bung* where the rectal end of the intestine and the cut end of the oesophagus are tied. The carcass is then *de-hided* and the hide is transferred to hide room. This is followed by decapitation where head is removed from the carcass and inspected. This step forms the second critical control point (CCP2) of the process.

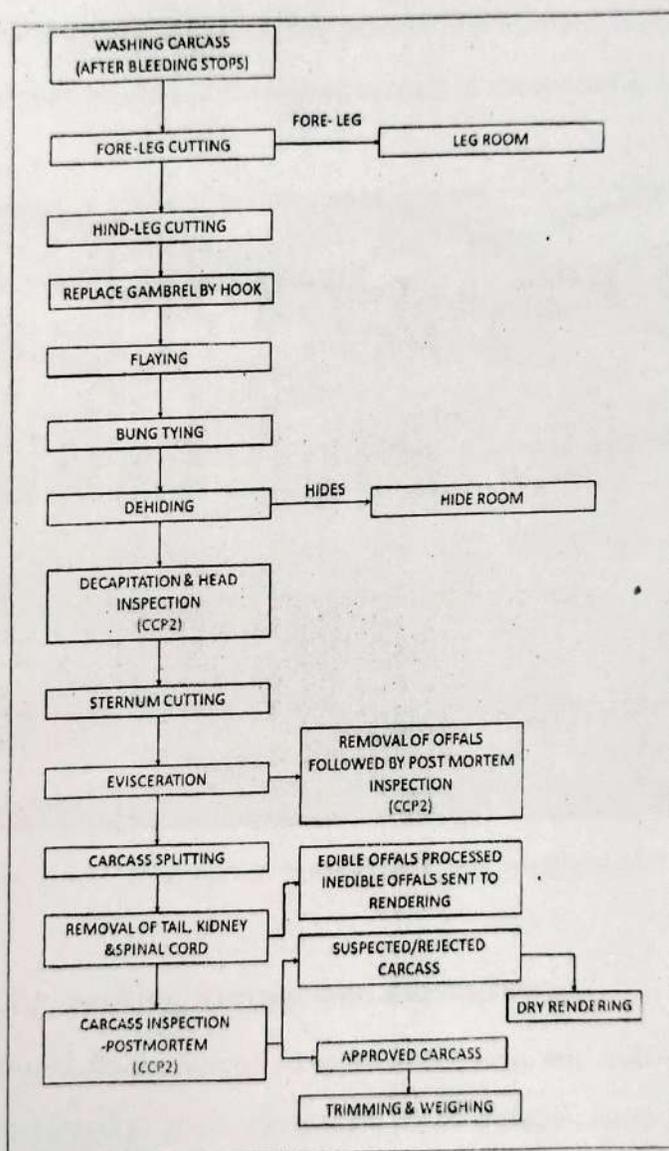


Fig. 2.5 Process flow diagram of post slaughtering operations

Then the sternum (breastbone) is cut to remove the paunch (intestine and stomach) first, followed by the pluck, (trachea, heart, lungs, etc.), and disposing of them separately. The pluck should be hung on a hook while the paunch should be dropped in a paunch container. Obviously the stomachs and intestines should not be opened while carcass dressing is in operation as such a move can easily cause contamination of the meat. This step also is a critical control point (CCP2) and therefore, a post mortem inspection is carried out. The carcass is then split and parts such as tail, kidney and spinal cord are removed. Another post mortem inspection of the carcass is carried out at this stage and any suspected carcass is sent to dry rendering unit and the approved carcass is trimmed and weighed. The process is presented in the form of a flow chart in Fig 2.5. Photograph of the trimmed and weighed carcass is shown in Fig 2.6.



Fig. 2.6. Photograph of the trimmed and weighed carcass

2.5. Meat processing, packing, storage and dispatch

Fig 2.7 shows the process flow involved in meat processing and subsequent steps. First the trimmed and weighed carcasses are washed with clean potable water and sometimes under pressure. Then the carcasses are marked with ID numbers and sent to chilling rooms.

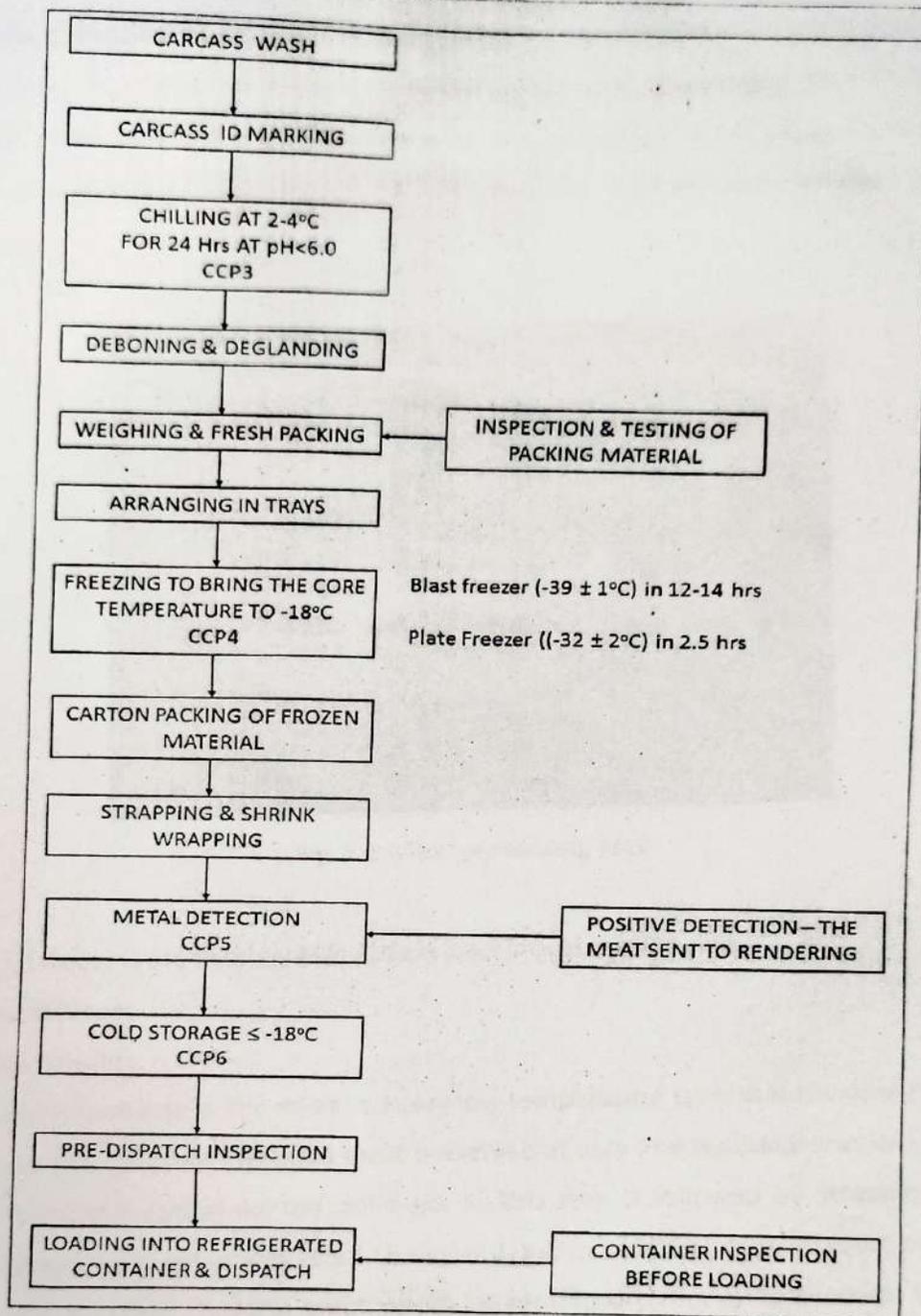


Fig. 2.7 Process flow diagram of meat processing and subsequent operations



where they are preserved at 2-4°C for 24 hrs. This step forms the critical control point no. 3. The split carcasses are sent to deboning and de-glanding unit where bones and glands are separated and different types of meat cuts are made. Fig. 2.8 shows the meat being processed in the deboning and deglanding unit. The meat is then weighed, packed fresh, arranged in trays and sent to freezers.



Fig. 2.8 Meat processing area

Two types of freezers are used by M/s Al-Dua food processing Pvt. Ltd.

1. Blast freezers
2. Plate freezers.

The main aim is to preserve the meat at a very low temperature such that the core reaches -18°C. Fig 2.9 shows trays of fresh wrapped meat preserved at very low temperatures in a blast freezer. This step forms the critical control point no. 4. This step is followed by strapping and shrink-wrapping. Then the meat is subjected to metal detection (critical control point no. 5). Positive metal detection means that the meat would be sent to dry rendering process. Otherwise the meat is sent to cold storage and then loaded into refrigerated containers for dispatch after thorough inspection. Fig. 2.10 and 2.11 shows the photographs of metal detection and cold storage units respectively.

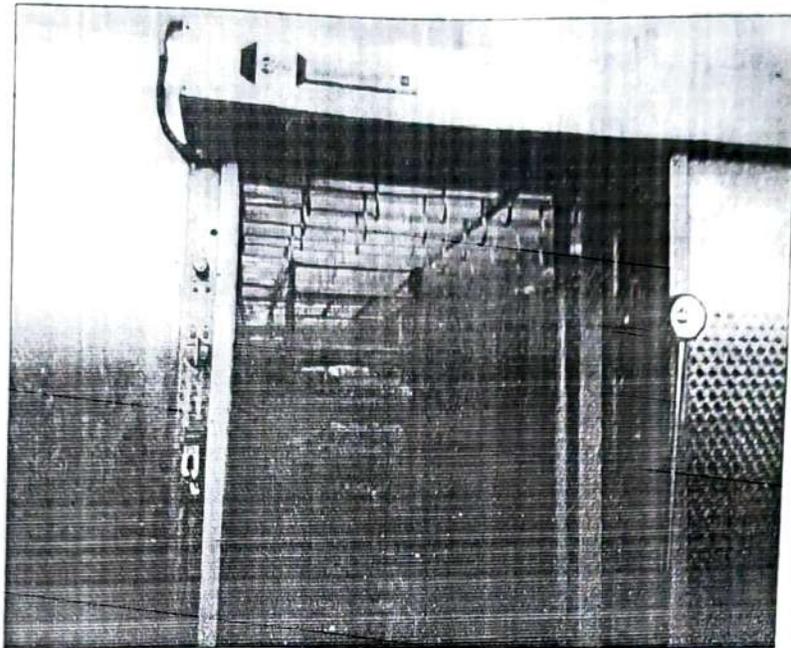


Fig. 2.9 Trays of meat stored in blast freezer

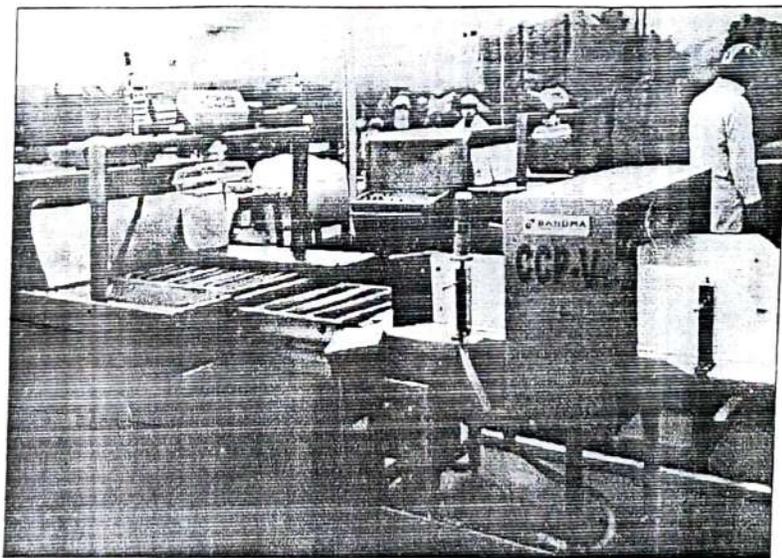


Fig. 2.10 Photograph of metal detecting unit

Edible offals after separation and washing are properly packed and stored by a method similar to meat.

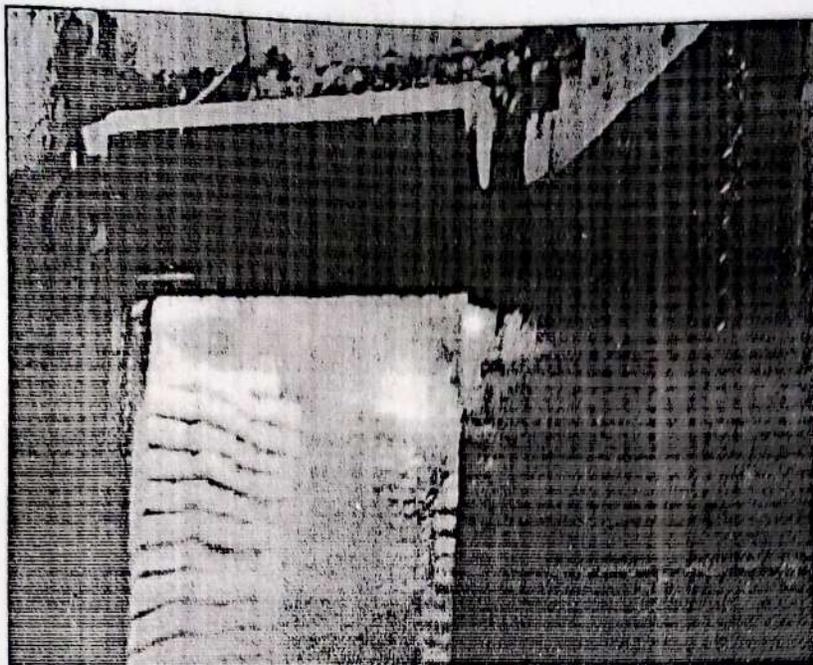


Fig. 2.11 Photograph of cold storage unit

2.6. Boiler operations

Two boilers of 6 MT capacities each are employed by the company. The boiler utilizes firewood as the main fuel along with dewatered sludge and dewatered –cum- shredded dung & ruminal vegetable matter as substitute fuels. The steam generated is used for the following purposes.

- a) Blood meal plant
- b) Dry rendering unit
- c) To make hot water required for washing the carcasses and for cleaning the meat processing area.

Boiler plant for generating steam is equipped with exhaust stack of 32 m height and multi-cyclone dust collector. The wood secured from the trees grown following Karnal technology and the dried rumen wastes are used as fuel feeds and therefore the system is internalized. Modernization of the boiler plant may be considered taking into account the energy efficiency.

The condensate water from blood meal plant and rendering unit are mixed with the boiler feed water. The wastewater generated from the washing processes, are sent to ETP. This process may be explained by the flow diagram shown in Fig. 2.12.

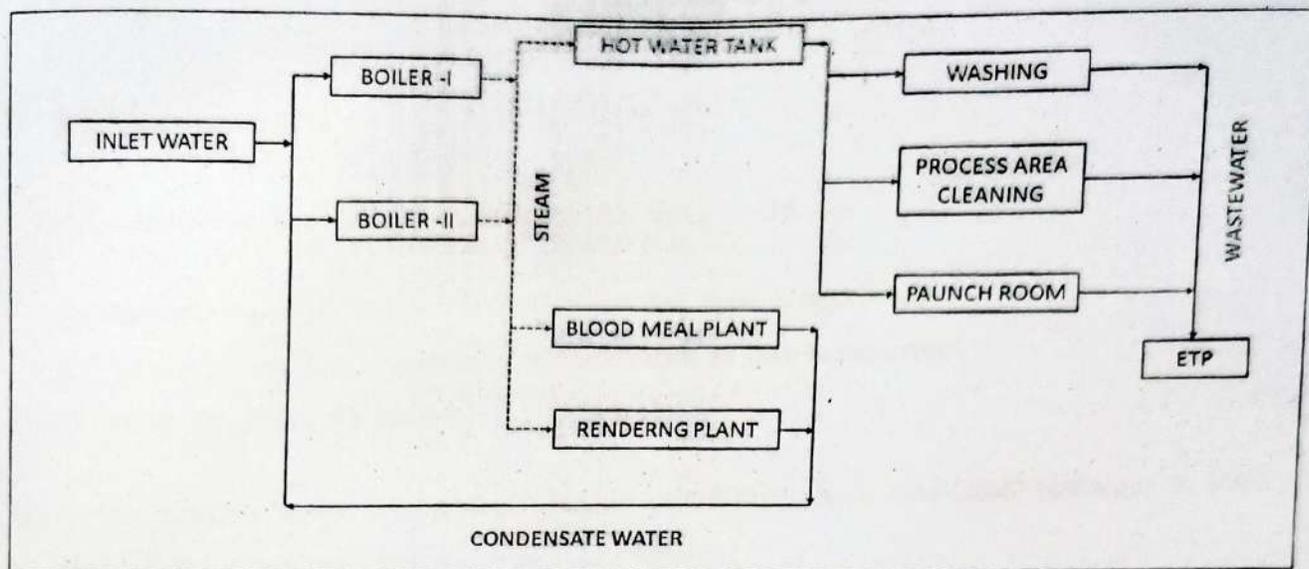


Fig. 2.12 Process flow diagram of operations related to boiler



3. PRODUCTS

3.1 Main products

The main products of M/s Al-Dua food processing Pvt. Ltd. are

- a) Boneless meat (In the case of buffalo, boneless meat is exported)
- b) Carcass (In the case of sheep/goat, the carcass as such is exported)
- c) Offals of buffalo, sheep/goat

When the slaughterhouse plant runs at its full permitted capacity (of 2000 buffaloes & 3000 sheep/goat) the quantities of main products are follows.

Table 3.1 Quantities of main products processed per day (at full capacity)

S.No.	PRODUCT	QUANTITY (TONS/DAY)
1.	Boneless buffalo meat	282
2.	Buffalo offals	98
3.	Sheep/ goat carcass	21-27
4.	Sheep/ goat offals	2.25-2.85

Currently (over the last 2 months) the sheep/ goat slaughter line is under renovation. Moreover, the plant is not running at its full capacity. It processes only about 1000-1200 buffaloes per day. Therefore, the quantities of main product are as follows.

Table 3.2 Quantities of main products processed per day (currently – last 2 months)

S.No.	PRODUCT	QUANTITY (TONS/DAY)
1.	Boneless buffalo meat	141-169.2
2.	Buffalo offals	49-58.8
3.	Sheep/ goat carcass	NIL
4.	Sheep/ goat offals	NIL

3.2. By-Products

The by products include

- a) Blood
- b) Bones
- c) Hides
- d) Fat
- e) Inedible offals (Intestines, oesophagus etc.)
- f) Head
- g) Horns
- h) Hooves
- i) Legs
- j) Rumen indigesta, dung

The quantities of all these by-products are given in Table 3.3..

Table 3.3 Quantities of by-products processed per day

S.No.	TOTAL BY-PRODUCTS	QUANTITY (TONS/DAY)
1	At full capacity of the plant	
	Buffalo	520
	Sheep/goat	21.75-24.3
2	Currently – last 2 months	
	Buffalo	260-312
	Sheep/goat	NIL

- Blood is converted into blood meal in the blood meal plant. Blood meal as such can be used as an organic fertilizer as it is rich in nitrogen. It is one of the highest non-synthetic sources of nitrogen. It has N = 13.25%, P = 1.0%, K = 0.6%. It is also mixed with meat bone

meal (MBM) to make up for the protein content and the mixture is sold as sterilized poultry feed supplement in the trade name of *Diamond*.

- Hides are sold to the local tanners on a daily basis for tanning purposes
- Bones, inedible offals, head, horns, hooves, legs etc. are sent to dry rendering plant to prepare meat bone meal (MBM) which may be used as a sterilized poultry feed supplement (or) fertilizer.
- Fat is extracted from the dry rendering unit as tallow. This is sold to soap manufacturing industries for the manufacture of soap.
- Rumen indigesta and dung are dewatered, shredded and are utilized as fuel supplement for boilers.

Fig. 3.1 shows the 50 kg packet of poultry feed supplement with the trade name of *Diamond*.

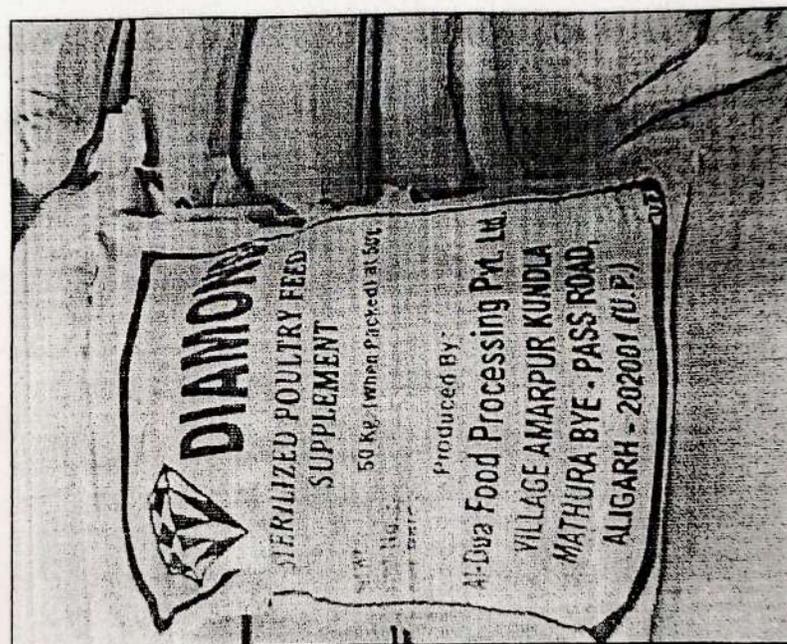


Fig. 3.1 Sterilized poultry feed supplement prepared by the dry rendering process



CHAPTER 4 WASTEWATER MANAGEMENT AND PERFORMANCE ASSESSMENT OF EFFLUENT TREATMENT PLANT (ETP)

4.1 Wastewater Generation and its Characteristics

4.1.1 Origin of Wastewater

The sources of wastewater from the industry are as follows.

- Urine and wash water from Lairage area
- Water used in washing the chillers, freezers, cold storages and different sections of process hall
- Liquid waste collected from paunch room and water used in washing the product in different sections of the slaughter hall

The average water consumption per animal is as follows.

- Buffalo – 200-250 L
- Sheep/Goat – 40-50 L

Therefore, total water requirement for full and current operating capacities is given in Table 4.1.

Table 4.1: Total water requirement from the process

S.No.	Water Requirement	Quantity
1.	At full capacity of the plant	
	Buffalo	400-500
	Sheep/goat	120-150
2.	Currently – last 2 months	
	Buffalo	200-300
	Sheep/goat	NIL

NOTE: The figures mentioned above are calculated values based on per capita water consumption per animal. However, the total water usage as provided by M/s Al-Dua Food processing Pvt. Ltd. is 600-800 KL/day and the quantity of wastewater generated is 500 -700 KL/day (i.e., about 83-88% of the total water used ends up in ETP)

4.1.2 Characteristics of wastewater

The characteristics of raw wastewater (stream wise) are given in Table 4.2.

Table 4.2: Characteristics of raw wastewater

S.NO.	STREAM	COD (mg/L)	TSS (mg/L)	BOD (mg/L)
1.	Lairage	1325	1650	186
2.	Slaughter	6280	450	226
3.	Paunch room	2835	700	221
4.	Rendering	1460	2600	226
5.	Deboning	2792	150	227

4.2. Wastewater Treatment

4.2.1 Effluent Treatment Plant

For the treatment of wastewater, the industry has installed individual Effluent Treatment Plant (ETP) based on Activate Sludge Process (ASP).

Presently all the waste streams from different unit streams are combined and treated in the Effluent Treatment Plant (ETP). It was designed and installed to handle the wastewater for removal of suspended solids (SS), Dissolved Solids (TDS), Biological Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) in composite wastewater so as to meet the discharge norms of pollution control board. The process flow diagram of ETP is illustrated in Fig. 4.1 and dimensional details of facilities of ETP are given in Table 4.3. The ETP consists of the following units.

- Screening
- Collection/Equalization Tank
- Flash mixing
- Primary and secondary clarifier
- Aeration tank I & II
- Multi Grade Filter (MGF) and Activated Carbon Filter (ACF)
- Sludge holding tanks for wet & dry sludge
- Volute press

Table 4.3: Details of Effluent Treatment Plant (ETP)

S. No.	Existing Treatment Units	Dimensions (in meter)			
		Nos	Length / Diameter	Breadth	Depth (LD/SWD)
1.	Holding tank	1	12.0	12.0	4.0
2.	Equalization Tank	1	12.0	12.0	4.0
3.	Flash mixing tank	1	2.5	--	3.5
4.	Primary clarifier tank	1	14.0	--	3.5
5.	Aeration Tank - I	1	36.0	17.0	4.5
6.	Secondary Clarifier tank - I	1	10.0	--	3.5
7.	Aeration tank - II	1	36.0	17.0	4.5
8.	Secondary Clarifier tank - II	1	13.0	--	3.5
9.	Volute press	1	--	--	--
10.	Sump tank	1	5.0	5.0	3.5
11.	Air blower	5	3 x 50 HP & 2 X25 Hp		
12.	Pump for influent transfer	6	6 x 5 Hp		
13.	Pump for sludge removal	10	10 x 5.0 HP		
14.	Air blower	2	2 x 20 HP		
15.	Treated water storage tank	1	10.0	10.0	3.5

4.2.2 Description of Treatment Process

The process flow diagram for wastewater treatment is shown in Fig. 4.2. First the wastewater stream is allowed to pass through the bar screens to separate larger solids such as bones, meat pieces etc., Then the wastewater moves on to the holding tank and then to the rotary drum screens. In the rotary drum screens, wastewater flows into the drum, where a deflector divides it evenly. Influent water passes through the perforated plate, which screens smaller solids from the flow. A large flight auger carries the waste to the end of the drum, where it empties into an integrated washer/compactor or directly into a dumpster. These waste materials are sent to dry rendering units. The wastewater then flows in to the equalization tank. The main function of the tank is to act as a buffer. To collect the incoming raw effluent that comes at widely fluctuating rates and position to the rest of the ETP at steady (average) flow rate. After screening out debris, the wastewater enters the flash-mixing tank where chemicals that encourage coagulation are added to the wastewater stream. The mixture is agitated quickly and thoroughly in a process called flash mixing.

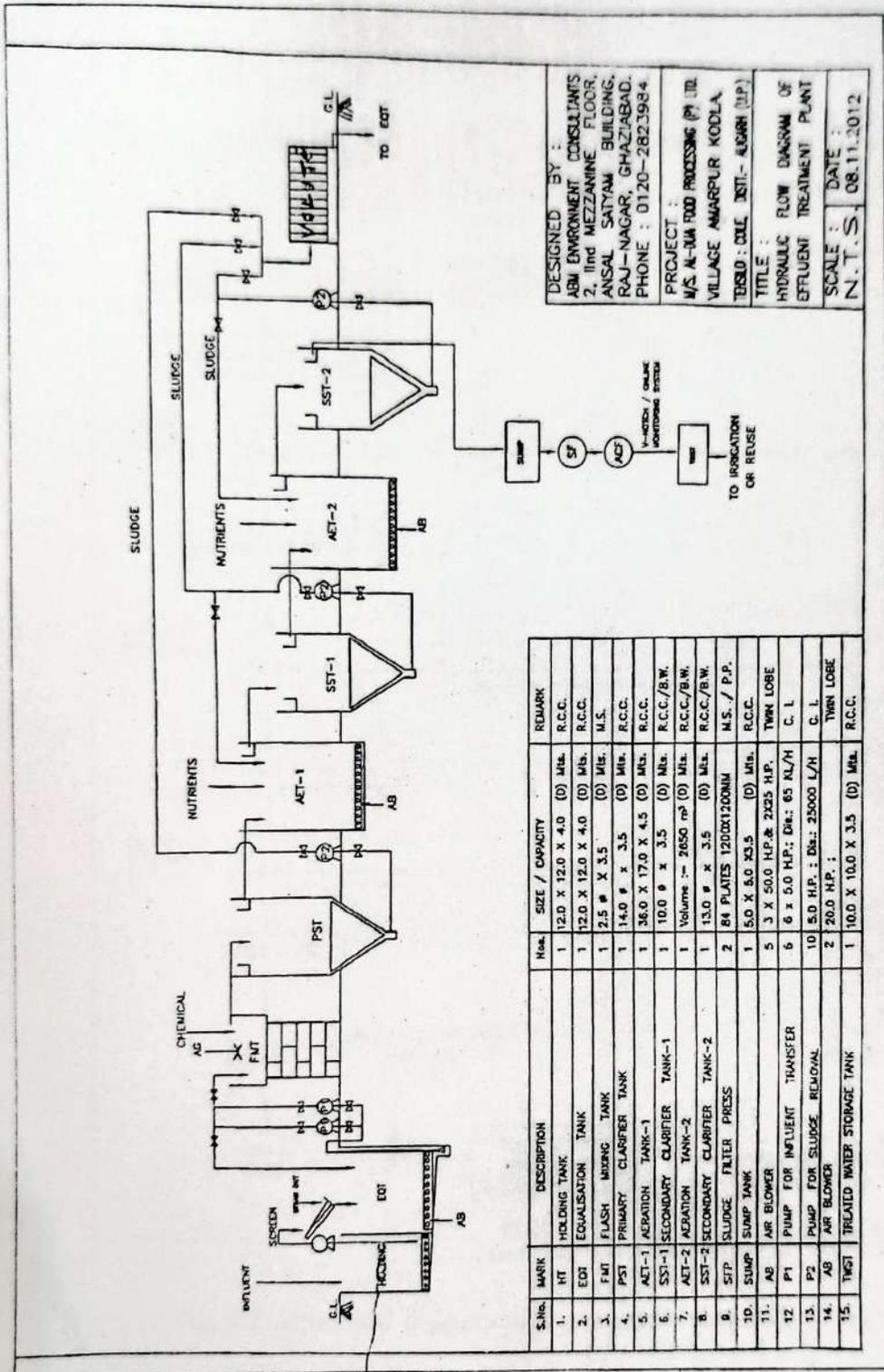


Fig. 4.1: Process Flow Diagram of Effluent Treatment Plant at M/s Al Dua Food Processing Pvt Ltd., Aligarh

DESIGNED BY :
 ABM ENVIRONMENT CONSULTANTS
 2, 11th MEZZANINE FLOOR,
 ANSAL SATYAM BUILDING,
 RAJ-NAGAR, GHAZIABAD,
 PHONE : 0120-2823984

PROJECT :
 M/S. AL-DUA FOOD PROCESSING (P) LTD.
 VILLAGE AMARPUR KODLA
 TERESOL - COLE DISTT. - ALIGARH (UP)

TITLE :
 HYDRAULIC FLOW DIAGRAM OF
 EFFLUENT TREATMENT PLANT

SCALE : N.T.S. DATE : 08.11.2012

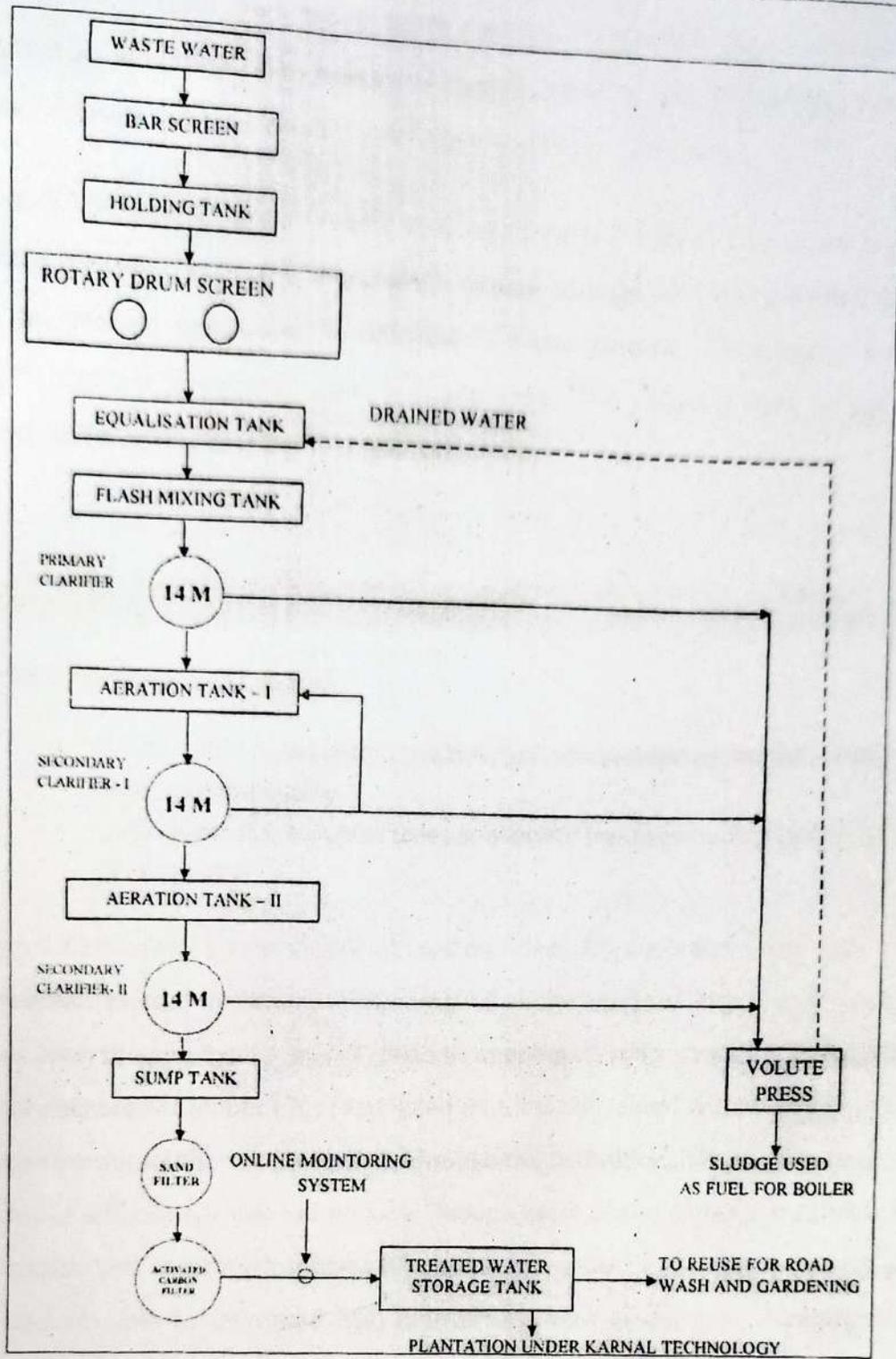


Fig. 4.2 Schematic diagram of wastewater treatment process

The wastewater stream then moves in to the primary clarifier, where settling occurs. The supernatant liquid stream then enters the aeration tank - I. The stream then enters in to the secondary clarifier- I, where activated biological treatment takes place.

The treated wastewater stream is sent to aeration tank- II followed by secondary clarifier - II and then collected in a sump tank and made to pass through sand and activated carbon filters. Finally, the treated wastewater is collected in a storage tank. The primary, secondary and tertiary sludge are dewatered using a volute press. The sludge is sent to boiler as a fuel substitute and the filtrate is sent to equalization tank.

4.3. Management of Treated Wastewater

The treated wastewater is used for

- Washing the roads within the slaughterhouse campus and for watering the garden in the facility
- Cultivation of Eucalyptus trees at a facility (for firewood) under KARNAL TECHNOLOGY.

The Karnal Technology involves growing tree on ridges 1m wide and 50cm high, disposing off the untreated sewage in furrows. The amount of the sewage/ effluents to be disposed off depends upon the age, type of plants, climatic conditions, soil texture and quality of effluents. The total discharge of effluent is so regulated that it is consumed within 12-18 hours and there is no standing water left in the trenches. Through this technique, it is possible to dispose off 0.3 to 1.0 ML of effluent per day per hectare. Though most of the plants are suitable for utilizing the effluents, yet, those tree species which are fast growing can transpire high amounts of water and are able to withstand high moisture content in the root environment are most suitable for such purposes. Eucalyptus is one such species, which has the capacity to transpire large amounts of water, and remains active throughout the year.

Photographs of some of the wastewater treatment stages are shown in the following Fig. 4.3.

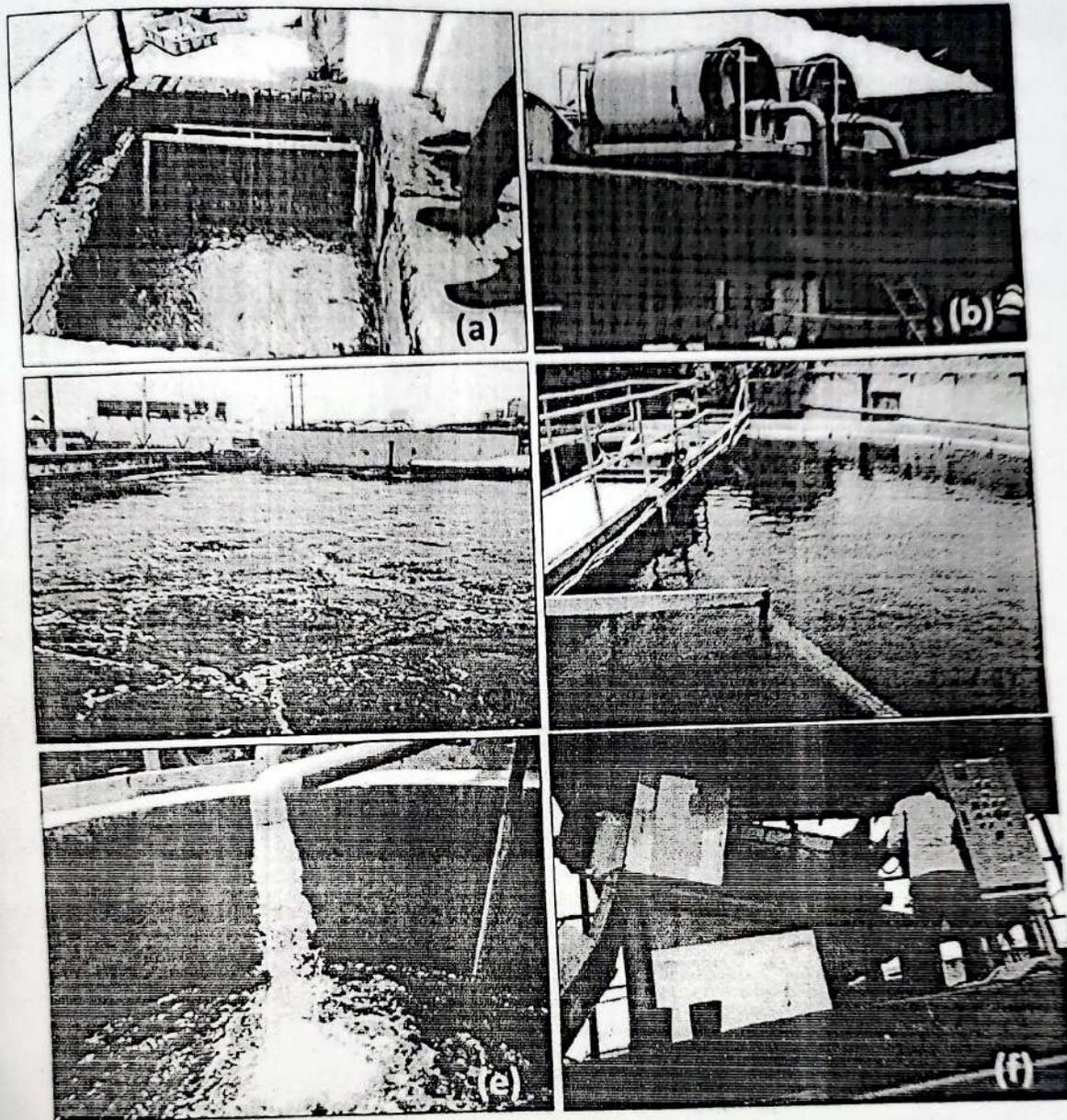


Fig. 4.3. Wastewater treatment stages. (a) Solids separation using bar screens. (b) Rotary drum screens. (c) Aeration Tank. (d) Secondary clarifier. (e) Treated wastewater. (f) Volute press for dewatering sludge

4.4 Performance Evaluation of Effluent Treatment Plant (ETP)

CSIR-CLRI has assessed the existing ETP based on the data furnished by the Al-Dua personal and based on the multiple field visits during the month of June 2019 and August 2019. During the visits of Scientists from CSIR-CLRI, the Industry was operational. This performance evaluation of ETP is studied based on the infrastructure, performance data and analysis of pollution parameters obtained during the visit of CSIR-CLRI. CSIR-CLRI team visited and collected the data on ETP; peoples working there were consulted for understanding the process/scheme of treatment and for obtaining capacity, dimensional and other details related to the performance evaluation of ETP. The details are given hereunder.

4.4.1 Quality of discharge Effluent

For evaluating the performance of ETP, the samples were collected from inlet and outlet of ETP on different date and brought to the CSIR-CLRI laboratory (stored at 40C) for analysis of various environmental parameters. The details of sampling are given in Table 4.4. The results of analysis were ensured by conducting triplicates.

Table 4.5: Details of Sampling

S. No	Date	Sample Code	Sample Name
1.	27.05.2019	Equalization Tank	PAR.AD.01.IN
2.	27.05.2019	Treated water Tank	PAR.AD.01.OT
3.	04.06.2019	Equalization Tank	PAR.AD.02.IN
4.	04.06.2019	Treated water Tank	PAR.AD.02.OT
5.	17.06.2019	Equalization Tank	PAR.AD.03.IN
6.	17.06.2019	Treated water Tank	PAR.AD.03.OT
7.	24.06.2019	Equalization Tank	PAR.AD.04.IN
8.	24.06.2019	Treated water Tank	PAR.AD.04.OT
9.	30.06.2019	Equalization Tank	PAR.AD.05.IN
10.	30.06.2019	Treated water Tank	PAR.AD.05.OT
11.	10.07.2019	Equalization Tank	PAR.AD.06.IN
12.	10.07.2019	Treated water Tank	PAR.AD.06.OT

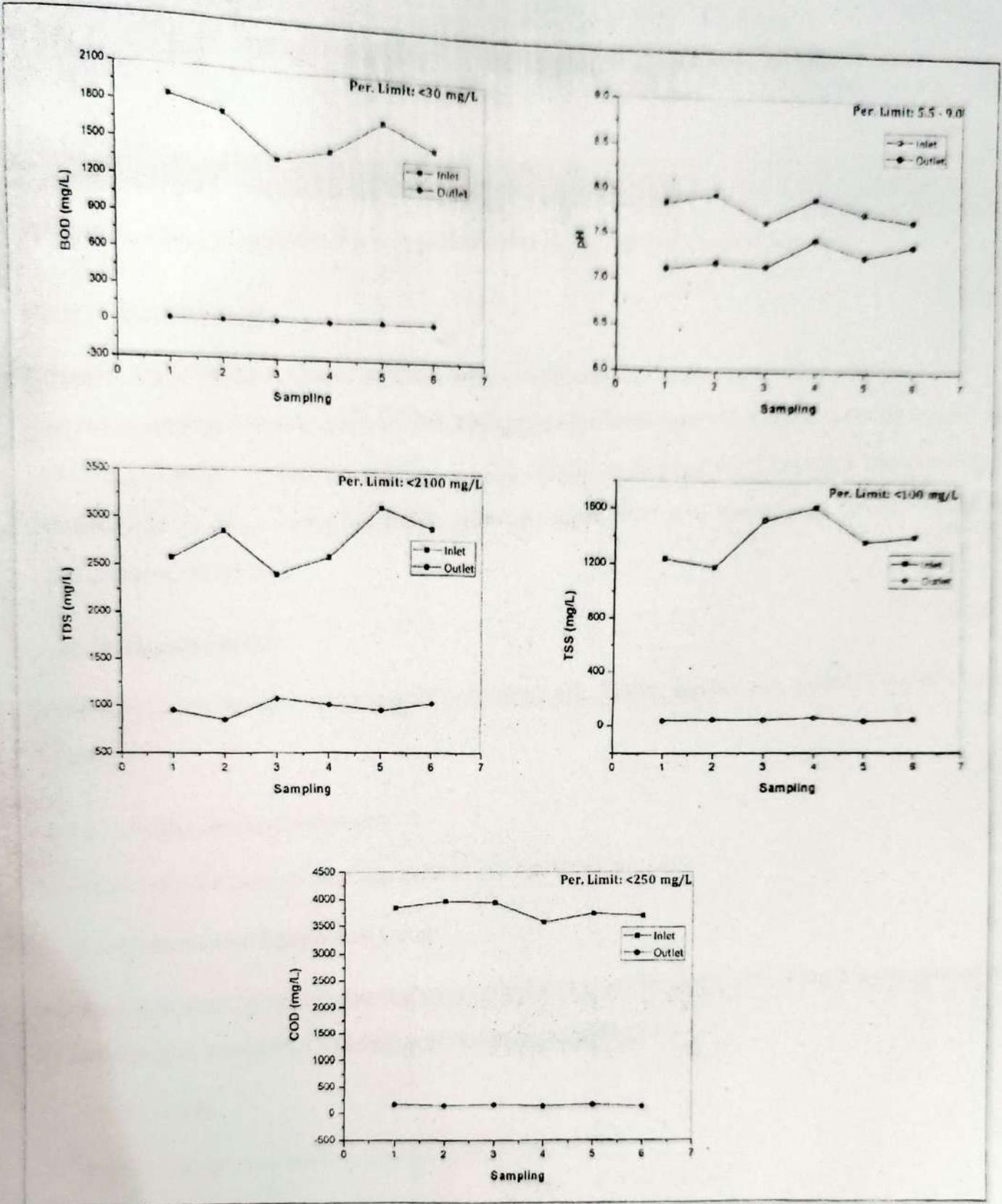


Fig. 4.4. Performance Monitoring Data for the ETP at M/s Al Dua Food Processing Pvt Ltd., Aligarh

5.0 SOLID WASTES GENERATED AND MANAGEMENT

5.1 Solid Waste

The following solid wastes could be generated in the slaughterhouse facility.

5.1.1 Dead Animals

There is a possibility for some of the animals to die during the transportation process. Any such animal reaching the facility will be sent to External Business Operators (EBO) who are registered with Nagar Nigam, Aligarh especially for the collection of dead animals. After slaughtering, if the carcass is found unfit from halal point of view, then also the animal carcass would be handed over to EBO.

5.1.2 Inedible Offals

Inedible offals include oesophagus, intestines etc. These wastes are sent to dry rendering process.

5.1.3 Head, horn and Hooves

Head, horn, hooves etc. are also sent to dry rendering process.

5.1.4 Rumen in-digesta and Dung

Rumen in-digesta constitutes the vegetable wastes, which along with dung are dewatered and shredded in a shredder and fed to boiler as a substitute fuel.

5.1.4 Bones

Bones, legs are also sent to dry rendering process.

5.1.5 Other animal parts

All other inedible animal parts are also sent to dry rendering process.

5.1.5 Sludge from ETP

The primary, secondary and tertiary sludge are dewatered using a volute press. The dewatered sludge (Primary – 6 MT, Secondary- 5 MT and Tertiary – 2 MT) is then sent to boiler as a fuel substitute.

5.2 Management of Solid Waste

The above mentioned solid wastes are managed following the flow chart shown in Fig. 5.1.

5.2.1 Dry rendering

About 57% of the total animal weight goes into the waste stream. The above mentioned solid wastes that are to be treated by dry rendering process are first shredded into small pieces and then charged into the dry rendering unit. Fig 5.2 shows the meat, bones and other inedible offals being conveyed by the screw conveyor to the dry rendering unit. In this process, all the unwanted moisture is eliminated from the wastes without the loss of any nutrient by using a specially designed cooker. The dry rendering cooker is a horizontal steam jacket equipped with a set of agitators, which keeps the material in continuous motion. The steam is applied to the jacket only and not to the material to be processed, as in wet rendering. The material remains in the cookers for about 4 to 5 hours. Steam pressure in the cooker jackets usually ranges from 3 to 4 kg/cm². The dry heat transmitted from the steam jacket to the raw material converts the moisture present in material into steam, which gradually builds up the internal pressure of cooker. This pressure, combined with agitation, disintegrates the material and breaks down the fat cell. Dry rendering therefore works on steam pressure developed from the moisture contained in the raw material itself, and not as in wet rendering, from the pressure created by injected steam.

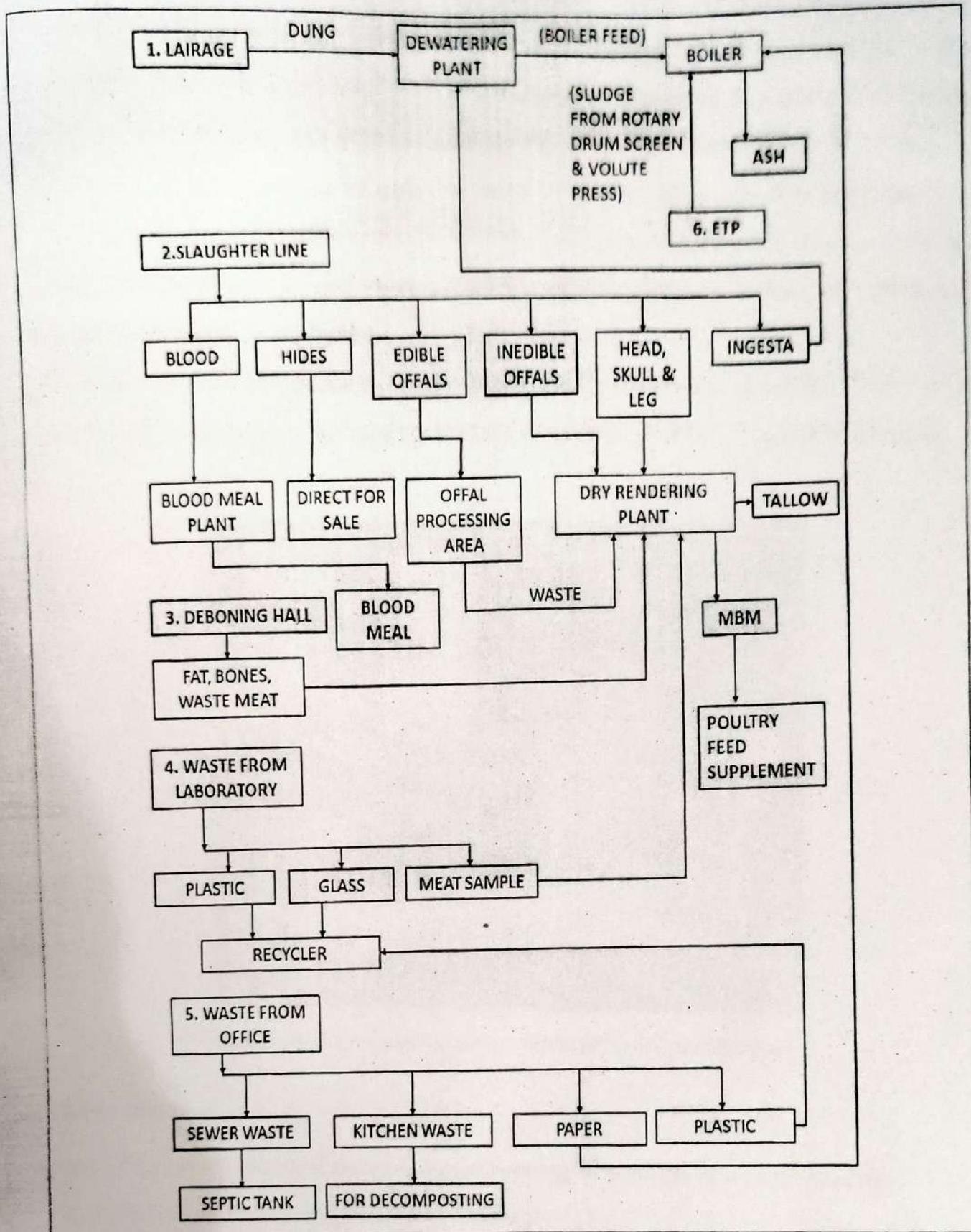


Fig. 5.1. Solid waste management plan

In the wet-rendering process, the fat floats on top of the liquid and is separated out. In dry-rendering, the fat is released from the fat cells but is still dispersed throughout the material. The fat in the solids may be removed by a hydraulic press. The whole process of sterilization, digestion, and drying, take place inside the cooker. Therefore, there is no loss of nutrient. The dry rendering process has been reported to yield approximately 20 percent higher than the wet-rendering process as the water containing water-soluble extractives and proteinous suspended matter is not discarded.

Meat bone meal (MBM) and tallow are the products of the dry rendering process. MBM can be used as a fertilizer (or) as a sterilized poultry feed supplement. Tallow is used for soap making.

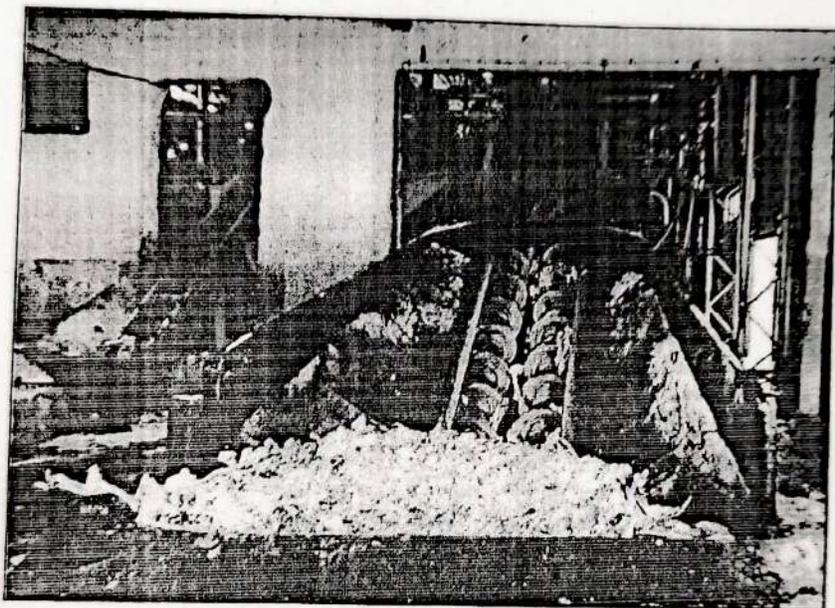


Fig. 5.2. Wastes moved by screw conveyor to dry rendering unit

5.2.2 Others

Blood meal: Blood meal as such can be used as an organic fertilizer as it is rich in nitrogen. It is one of the highest non-synthetic sources of nitrogen. It has N = 13.25%, P = 1.0%, K = 0.6%. It is also mixed with meat bone meal to make up for the protein content and the mixture is sold as sterilized poultry feed supplement in the trade name of *Diamond*.

Boiler ash: The ash material left after the burning of boiler fuel (firewood, dewatered dung, dewatered rumen indigesta and dewatered sludge) is stored in temporary pits and is supplied to local farmers for vegetable cultivation as it is rich in potassium.

Plastic and glass: Plastic and glass wastes generated in small quantities are sent to recyclers

kitchen waste: Kitchen waste generated in small quantities are sent for decomposting.



6. RECOMMENDATIONS

6.1 Environmental Management

6.1.1 General recommendations

- a) The treated wastewater is currently used for gardening purpose and for cleaning of roads in the facility. It shall be ensured that the mechanism of disposal of treated wastewater is in congruence with the requirements of the regulatory authorities.
- b) It is suggested that the Type I wastes may be used for generation of energy or biogas. It is understood from the management that the organization had ordered the equipment and system for DAF and UASB. After the installation and commissioning, the Type I wastes would be utilized beneficially, generating biogas. This would engender reduction in BOD and COD of the wastewater, which eventually would attenuate the organic load in the influent of the Activated Sludge Process (ASP). This would result in enhancement of the efficiency of the ASP and final treated wastewater.

6.1.2. Specific recommendations (for solid waste management)

In general, slaughterhouses generate substantial quantities of solid wastes. Waste processing and disposal methods have to be economical and environmentally acceptable. It needs to be noted that almost all the solid wastes generated can be processed to obtain various value added products which have high commercial value. The specific recommendations are provided hereunder. Once the carcass is separated into soft tissues and bones, the bones are sent to rendering units. Alternatively, the bone may be utilized for the preparation of animal meal either as semi moist meal or dry meal. Addition of suitable nutrients will also improve the nutrition and commercial value of the prepared animal feed.

- a) Bone is a special raw material containing both organic and inorganic constituents in appreciable quantities resulting in the preparation of various value-added end products such as ossein, glue and gelatin.
- b) Bone ash in the form of Hydroxyapatite can be used as bone implants in the development of bone matrices.
- c) Horns and hooves can be used for the extraction of keratin for use in cosmetic and biomedical applications.
- d) The utilized skin removed from the face and skull of the animal can be used in the extraction of bovine collagen for use as a Biomaterial in regenerative medicine.
- e) Both tail hair and ear lobe hair with their characteristic properties become the choicest raw material for the manufacture of various types of brushes for paint industry.
- f) Horns and hooves may be used for the manufacture of a number of useful and value added products such as buttons, combs, knife handles, fancy and decorative articles.



7. CONCLUSIONS

The organization is installed with adequate facilities and amenities to treat the wastewater generated from the unit. It is also observed through analysis of the wastewater at different point for a specific time span indicates that the organization has been conforming to the discharge requirements as stipulated by the CPCB and UPPCB.



8. ANNEXURE

8.1 Questionnaire provided by CSIR-CLRI

Questionnaire on Solid Waste Management In Slaughter Houses

1. Name & Address of the firm:
2. Date of establishment of the firm:
3. Contact details of the official:
4. Type of slaughter house (based on animal slaughtered): **Small / Large**

*(NOTE: Large animal slaughter house i.e. Cattle and buffalo/
Small animal slaughter house i.e. Goat and sheep)*

5. Classification of slaughter house (based on capacity): **Small/ Medium/ Large**

(NOTE:

(I)Based on Number:

Large: More than 200 large animal (or) more than 1000 small animal per day

Medium: 50 to 200 large animal (or) 300 to 1000 small animal per day

Small: Less than 50 large animal (or) less than 300 small animal

(II)Based on weight:

Large - > 70 tons of live weight killed per day

Medium - 15-70 tons of live weight killed per day

Small - < 15 tons of live weight killed per day

6. Average number of animals slaughtered by the unit per day (Heads per species, Total and actual capacities):



7. Type of slaughter house (based on process): Manual/ Semi-mechanized/ Mechanized
8. Total number of workers employed by the unit:
9. Provide process flow diagram of the whole plant (Attach as a separate sheet):
10. Average water consumption per day (preferably unit operation wise):
11. Provide the characteristics of wastewater (preferably stream wise):
12. What is the quantity of wastewater generated per day?
13. Provide details about wastewater treatment system with process flow diagram:
14. Provide characteristics of the treated effluent:



15. Production capacity per day (Meat & other products):

TYPE	QUANTITY (IN TONS)
Meat	
Offal	
Blood	
Bones	
Fat	
Others (specify)	

16. Percentage of meat exported (% exported out of total production):

17. Solid waste information (per day):

SOURCE	SOLID WASTE QUANTITY (IN TONS)
ANIMAL HOLDING & LAIRAGE	
i. Animal Holding area	
ii. Lairage	
ABATTOIR & MEAT PROCESSING	
iii. Stunning/Bleeding unit	
iv. Hide removal (Hair and Dirt)	
v. Evisceration unit	
vi. Offal washing area	
vii. Carcass dressing	
viii. De-boning unit	
ix. Dung, Rumen digesta	
x. Others	
xi. % of solid waste generated per animal	
BY-PRODUCTS PLANT	
ETP	
i. Primary sludge	
ii. Secondary sludge	
iii. Tertiary sludge	
LABORATORY	
OFFICE AREA	
OTHERS	

23. Are there designated disposal areas for solid and liquid wastes?
24. Does each room have adequate space which allows effective segregation of inedible and condemned parts?
25. Quantity of skin and hides flayed per day (in numbers / day and in Tons/day):
26. Are salt facilities for curing hides part of the plant? (they shouldn't):
27. Provide the mechanism/ method of processing blood and the end product:
28. Provide details about characteristics of the solid wastes? Provide details for each type of solid wastes.

PARAMETER	VALUE
% Moisture content	
Total solids	
Total volatile solids	
Organic carbon	
Total nitrogen	
Phosphorous	
Potassium	

29. Whether solid wastes are segregated separately as Type -I (vegetable) and Type-II (animal) wastes?
30. Mention any by-product which is not utilized and as a result ends up in waste stream. Also mention reasons for not utilizing the same.
31. What type of solid waste treatment method is followed?
Composting/Bio-methanation/Alkaline hydrolysis/Wet rendering/Dry rendering/Incineration/Others
(If more than one treatment method is followed, mention the quantity of solid waste going into each treatment method)
32. Is there an incinerator? How far is it from the slaughterhouse and service facilities (at least 50 m away?)
33. If an animal arrives dead or dies in Lairage, how is it disposed?
34. Is the slaughter house ever modernized? If yes, mention any new solid waste management techniques adopted?

35. Whether any attempt is made to keep solid wastes away from wastewater streams? If yes, mention the same.

36. Is the sewage disposal system environmental friendly?

37. Please provide process flow diagram of the solid waste management process (Attach as a separate sheet):

Signature of the Official/Representative

8.2. Additional questionnaire provided by CSIR-CLRI

21/12/2012-5
184



GROUND WATER DEPARTMENT

Uttar Pradesh Ganga & Yamuna Water Resources Development
Ministry of Jal Shakti
Government of Uttar Pradesh

Form 8 (C)
[See Rule 8(1)]

AUTHORIZATION/ NO-OBJECTION CERTIFICATE FOR SINKING OF NEW WELL FOR INDUSTRIAL/ COMMERCIAL/ INFRASTRUCTURAL OR BULK USER OF GROUND WATER

[Under Section 14 of the Uttar Pradesh Ground Water Management and Regulation Act, 2019.]

AUTHORIZATION/ NO-OBJECTION CERTIFICATE NO: NOC011625

VALID UP TO : 05/08/2026

(UIS10(1) of the Uttar Pradesh Ground Water Management and Regulation Act, 2019)

Registration No.: 202106000567

Name of the Owner	MOHD ZAHEER	Company Name	AL-DUA FOOD PROCESSING PRIVATE LIMITED
Designation	Managing Director	कंपनी का नाम	
पद		Authorization Letter	Download
Company Address	VILL- AMARPUR KODLA, TEHSIL COLE DIST- ALIGARH	प्राधिकार पत्र	
केपनी का पता		Application Form Serial No.	ALGH0621NIN0014
Address of the Applicant	VILLAGE AMARPUR KONDLA, TEHSEEL- COLE, MATHURA BYE-PASS ROAD, ALIGARH	Specimen Signature:	
Date of Submission	25/06/2021		
Location Particulars		Block	LODA
District	Aligarh	Municipality/Corporation	No
Plot No./Khasra No.	LAND DOCUMENTS ENCLOSED		LAND DOCUMENTS ENCLOSED
Ward No./Holding No.			
Particular of the Existing Well and Pumping Device			
Date of Construction/Sinking of the Well	07/08/2012	Depth of the Well (In meter)	107.00
Type of Well	Others	H.P. of the Pump	7.50
Purpose of well	Industrial	Rate of Withdrawal (m ³ /hr.)	35.00
Type of Pump Used	Submersible		
Operational Device	Electric Motor		
Date of Energization (In Case of Electric Pump)			21/12/2012

25/08/2021 16:00

Application Form

Maximum Allowable Rate of withdrawal (m³/hr.): 35.00

Maximum Allowable Running Hours Per Day: 10.00
112000

Maximum Allowable Annual Extraction of Ground Water:

This No-Objection certificate authorizes the owner applicant (user) to sink a well in the location specified at Sl. (2) for extraction of ground water at a rate not exceeding that as shown at Sl. (3j), for Running Hours 1 day as shown at Sl. (3k), and for maximum allowable annual extraction of ground water as shown at Sl. (3k) and is valid subject to the observance of the conditions stated overleaf.

GENERAL CONDITIONS:

- In case of any change of ownership of the proposed well, fresh authorization has to be obtained.
- No change of location, design, rate of withdrawal and pumping device in respect of the proposed well as indicated at SL (2) and (3) of this certificate shall be made without prior permission of the Competent Authority. Any deviation in this regard shall lead to cancellation of this authorization
- For the purpose of measuring and recording the quantity of ground water extracted, every said user shall affix digital water flow meters (conforming to BIS/ IS standards) having telemetry system in the abstraction structure, which record rate and quantum of extraction, at outlet of pumping devices and it shall be presumed that the quantity recorded by the meter has been extracted by the said user, until the contrary is proved. The rate of extraction of ground water from the well as shown in item 3(k) shall not exceed to the recorded rate from water meters
- The concerned Authority reserves the right to stop extraction of ground water from the well due to quality hazards or any other reasons, if the situation so demands
- In case of any change of ownership of the existing well, fresh registration has to be obtained.
- No change of location, design, rate of withdrawal and pumping device in respect of the existing well as indicated at Sl. (2) and (3) of this certificate shall be made without prior permission of the Competent Authority. Any deviation in this regard shall lead to cancellation of this registration
- In case, any of the particulars / information furnished by the applicant in his application for issuance of this registration is found to be incorrect during verification at any subsequent stage, this registration is liable for cancellation.
- The Certificate of Authorization/ NOC shall be valid for a period of five years from the date of issue. The applicant shall have to apply for renewal through a fresh application, at least ninety days prior to expiry of its validity.
- Con